Business Studies

VOL XXVI

January – July, 2005

Department of Commerce

University College of Business Studies

UNIVERSITY OF CALCUTTA

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BUSINESS STUDIES

♦ January & July 2005 (No. 1&2) ♦

Vol. XXVI No.

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Gender Inequality in Indian States – Development of a Gender Discrimination Index

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Abstract

This paper examines the nature of the gender discrimination in various spheres of social and economic life across the states since 1981, entirely on the basis of the secondary data taken from various census reports. It also tries to find out the crucial correlates of inter state disparities in respect of gender discrimination in terms of a cross state regression analysis. We also made the convergence test of female-male ratio (FMR) across the states. Further we develop composite gender discrimination index. The cross-state and cross-time behaviour of most common parameter of gender discrimination i.e. FMR clearly reveal a falling trend. The convergence test also indicates a converging tendency of falling FMR across the states and over time. On the other hand, so far as the other parameters of gender discrimination are concerned we find overtly declining trend in sex ratios in literacy rate coupled with an increasing trend in IMR, employment etc. Surprisingly, while Kerala has been conspicuous in respect of increase in female literacy and FMR, the gender discrimination in respect of IMR and employment has been found to be highest in Kerala as compared to all other states. Our cross state regression results show that gender gap in employment and literacy are the statistically significant explanatory factors for the inter-state differentials in gender discrimination. On the whole the composite gender discrimination indices reveal that there has been tremendous increase in gender discrimination in almost all the states of India.

Key-words: Inter-state disparities; gender discrimination; FMR; gender discrimination index; correlates of gender discrimination; cross state regression.

1. Introduction

The inequity between men and women is ubiquitous in almost all the societies and it is basically conspicuous in our society also. Such type of inequality is found to be reflected in respect of natality, education, employment, social recognition etc. A common parameter, which is used to capture the degree of inequality between sexes i.e. the gender discrimination

is the female-male ratio (FMR). The cross time movement of the values of the FMR is used to generate idea about the dynamics of gender discrimination. However, it is quite obvious that a single parameter is completely inadequate to capture the nature and degrees of gender discrimination in various sphere of our social and economic life. So one has to have a composite Gender Discrimination Index (GDI) covering all the aspects. Actually gender discrimination may have varied dimensions not only across time but also across the regions of our country. It may take heterogeneous forms across the regions of our country depending upon the heterogeneity of socio-economic and cultural conditions and norms. In fact we know that in our male dominated society there are some societal prejudice, norms and rules which help the persistence of discrimination between men and women. Such gender discrimination is most vividly reflected in respect of natality through sex selective abortion, Infant Mortality Rate (IMR), health care, employment and education. It is surprising to think of the fact that even after 59 years of our independence, the majority of the married women of our society get almost totally detached from their natal family after marriage. Recently however, the patrilineal and matrilineal property rights are partly recognized. Astonishingly, it is difficult to conceive of the fact that even now, about 78% of the pregnant women of our country suffer from anemia, which indicates negligence to female health. Further the female literacy rate is still much lower than literacy rate for male (female literacy rate is 54% in India for 2001 and 76% for male in the same year) and this is also an indication of neglect of female in respect of provisions of education.

Of course there is a vast literature pertaining to the nature of gender discrimination in India (Agnihotri, 1999, 2001; Das, 1987; Dasgupta, 2000; Dreze & Sen, 2002; Dyson, & Moore, 1983; Repetto, 1972; Sen, 1986 etc.). Astonishingly in none of these studies neither a suitable gender discrimination index or gender gap has been formed nor there is any attempt to find out quantitatively the crucial determinants of gender discrimination which are responsible for the cross state differentials in the gender discrimination. Moreover, no attempt has been made to see whether there has been a tendency of convergence of falling dimensions of gender discrimination especially the FMR across the states over time. This is the fundamental motivation behind this study.

So our study is mainly concentrated on finding out the correlates of the inter-state disparity in FMR and also on the development of a suitable index of gender discrimination. Further it seems that the initial value of FMR has a remarkable impact on the behaviour of FMR across time. So in our study we try to estimate whether there is a converging tendency of the falling trend of FMR across the states by using conventional neo-classical tool of convergence test. This study is organized as follows. Section II highlights the data and methodology, section III presents an analysis of the nature of the inter state disparity in gender discrimination,

section IV presents the gender discrimination indices and its cross state variability, finally section V gives concluding remarks.

2. Data and Methodology

This study is completely based on the secondary data collected from various census reports and also from SRS Bulletin, GOI. To find out the correlates of cross state differentials in FMR which is the most conventional parameter of gender discrimination we make a cross state inter-temporal regression analysis such that we regress FMR on FMR of literacy and FMR of employment and we estimates the relevant coefficients by using ordinary least squares method. For this purpose we fit a log-linear model to the data which is as follows:

$$Log\ (FMR)_{it} = a + b_1\ Log(Lit)_{it} + b_2\ Log(Emp)_{it} + e_{it}$$

Where FMR – Female-male Ratio i.e Sex-Ratio (SR); Lit – Literacy rate; Emp.- Employment and e- Error term, i = 1,2,....16 states ; t = time

We also develop inter-temporal gender discrimination indices for each state by following the method of construction of human development index used by UNDP. The gender discrimination index for each state concentrates on discrimination in four essential dimensions viz. (i) Female Male Ratio, (ii) Literacy rate, (iii) IMR and (iv) Employment. We construct the gender discrimination index in the following manner:

Step-1: In constructing the gender discrimination index we first compute the gender gap by subtracting the female-male ratio of each of the four components of gender discrimination from unity and then we find out the dimension indices of gender gap for these components as follows:

$$I_{ij} = (X_{ij}\text{-}Min\ X_{ij})/(Max\ X_{ij} - min\ X_{ij})$$

Where X_{ij} = Actual value of the variable; i = No. of variables and j = No. of states

Step- 2: Now taking the simple average of I_{ij} by paying equal weights to all the components we construct the index for the periods under consideration

3. An Analysis of the Nature of the Inter-State Disparity in Gender Discrimination

In this section we analyse the nature of the inter state disparities in the female-male ratio (FMR) and also the different socio-economic spheres where the gender discrimination persists across the states. **Table-1** gives an overview on the magnitude of the nature of gender discrimination across the states. The time profile of the values of the FMR clearly indicates a slight declining trend of the FMR at the national level from .934 in 1981 to .927

in 1991, which is followed by marginal increase to .933 in 2001. It is quite obvious from the table that there are some states especially the north-western states like Haryana, Punjab and also the states like Maharastra, Madhya Pradesh, Himachal Pradesh, Gujarat and Bihar where there is a falling trend in FMR, while the other states have experienced a more or less rising trend in the same. It is also reflected that some states have experienced a rising trend in FMR between 1991 and 2001. Using the coefficients of variation (C.V) as a measure of inter-state disparity of FMR we see that it assumes small value across time albeit the time profile of the C.Vs reveal an increasing trend in FMR since 1981. However, the conventional perceptions regarding the behaviour of FMR across states has been the convergence of the falling trend of the same without being supported by any statistical proof (Dreze & Sen, 2002).

Table 1: Female-Male Ratio (FMR) and Child Sex-Ratio in major states of India during 1981-2001.

States	Sex-Ratio			Child Sex-Ratio	
	1981	1991	2001	1991	2001
A.P	.975	.972	.978	.975	.961
Assam	-	.923	.935	.975	.965
Bihar	.946	.907	.919	.953	.942
Gujarat	.942	.934	.920	.928	.883
Haryana	.870	.865	.861	.879	.819
H.P	.973	.976	.968	.951	.896
Karnataka	.963	.960	.965	.960	.946
Kerala	1.032	1.036	1.058	.958	.960
M.P	.941	.912	.919	.941	.932
Maharastra	.937	.934	.922	.946	.913
Orissa	.981	.971	.972	.967	.953
Punjab	.879	.882	.876	.875	.798
Rajasthan	.919	.910	.921	.916	.909
Tamil Nadu	.977	.974	.987	.948	.942
Uttar Pradesh	.885	.876	.898	.927	.916
West Bengal	.911	.917	.934	.967	.960
India	**.934**	**.927**	**.933**	**.945**	**.927**
C.V	4.68	4.80	5.07	3.22	5.40

Source: Various census reports, GOI.

But the convergence test (using neo-classical tool of convergence test) of our study through cross state regression analysis[1] reveals the converging trend of the falling FMR across the

[1] The regression equation is given by::

$$\log(FMR\text{-}01)-\log(FMR\text{-}61) = -.009669 - .3990 \log(FMR\text{-}61) + e$$
$$(.0074) \quad (.2035)$$
$$[.2225] \quad [.0757]$$

Adj. R^2 = .1915 (.0165) $F(1,11) = 3.842$

Figures in first brackets are standard errors and that of third brackets are p-values.

states. In fact what we find is that some states viz. Bihar, Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh, Maharastra & Orissa with higher initial FMR have experienced a declining trend in FMR, while some other states viz. Andhra Pradesh, Assam, Karnataka, Kerala, Rajasthan, Tamil Nadu, West Bengal etc. with lower initial value of FMR have experienced increasing trend in FMR. So on the whole we do not find any uniform pattern of cross time movement in FMR

Another proximate parameter measuring the gender discrimination might be the behaviour of child sex-ratios which seems to have some impact on the general FMR also. The data on the child sex-ratio (see **table 1**) reveal that in almost all the states excepting Punjab, Kerala and Himachal Pradesh the same has revealed a declining tendency between 1991 and 2001. The most crucial explanation to this may be the lowering of female childbirth or hidden female infanticides and the sex selective abortions. The census surveys do not provide any information on this aspect. What is surprising is that although the value of C.V is very low we find an increasing trend of the same, which obviously reflects the increasing tendency of inter-state disparities in this respect. Further, it is also noteworthy that child sex ratio has a bearing on the general FMR and in this respect the inter-temporal correlations between the FMR and child sex-ratio are not so high for 1991 and 2001 (r_{91} = .64, r_{01}= .68) albeit the correlation is positive. In fact the intermediary death of male and female at the age above 4 years may also affect the cross time FMR.

Now we consider the nature of the inequality between male and female in terms of gender-gap in some of the crucial socio-economic sphere of life of our society, viz. gender-gap in child labour, gender-gap in respect of education, gender-gap in respect of employment and gender-gap in respect of IMR. The data on the Sex Ratio (SR) on child labour which are (given in **Table-2**) clearly indicate that in about eight states out of fifteen states viz. Andhra Pradesh, Madhya Pradesh, Maharastra, Rajasthan etc. the ratios are greater than unity which indicates the dominance female child labour relative to male thereby indicating prevalence of gender discrimination in case of use of child labour also. Since there is a lack of data on the sex-wise child labour across various censuses we are not able to provide any inter-temporal nature of sex-ratio on child labour. Another interesting feature relating to the sex ratios on child labour is that the degree of inter-state disparities is found to be very high (C.V= 43.84). Further the figure on the proportion of female working children in the age of 5-14 years is still very high at the all-India level (5.06%) such that some states like Andhra Pradesh, Madhya Pradesh, Himachal Pradesh, Maharastra, Rajasthan and Karnataka have surmounted this figure, the figures being 10.5, 8.6, 5.6 6.6, 7.9 and 8.7 respectively. So, it is plausible to say that even in case of use of child labour the degree of exploitation of female children is

still higher in majority of the states excepting Kerala, Haryana, Uttar Pradesh, West Bengal and Punjab.

Table 2: Incidence of Child Labour in Major States of India in 1991.

States	Child Labour		Sex ratio of child labour
	Boys	Girls	
A.P	9.5	10.5	1.10
Assam	6.8	4.1	.602
Bihar	4.9	2.9	.591
Gujarat	5.1	5.5	1.07
Haryana	3.2	1.8	.562
H.P	3.6	5.6	1.55
Karnataka	8.9	8.7	.977
Kerala	0.6	0.5	.833
M.P	7.6	8.6	1.13
Maharastra	4.9	6.6	1.34
Orissa	6.3	5.4	.857
Punjab	5.0	0.9	.18
Rajasthan	5.2	7.9	1.51
Tamil Nadu	4.6	5.1	1.10
Uttar Pradesh	5.0	2.5	.50
West Bengal	5.6	2.7	.48
India	5.66	5.06	.89
C.V	**39.55**	**59.93**	**43.84**

Note: C.L= Proportion of working children in the age group 5-14 years; Source: Same as Table-1.

On the other hand, **Table-3** presents the data on FMR and gender gap in respect of literacy rates. It's a matter of buoyancy that in almost all the states the FMRs in literacy rate (i.e. ratio of female literacy rate to male literacy rate) have been found to have a increasing trend over the period 1981-2001. so, the gender gap in respect of literacy are found to decline steadily both across the states and time since 1981. Further, we also find that the inter state disparity in respect of gender gap in literacy has fallen over time one of the explanations behind it seems to be the various public action programmes viz. Sarba Sikhsha Abhijan etc. undertaken by the GOI from time to time.

Table-3: Ratio of female-male literacy rate and gender gap in literacy rate

States	Ratio of Female-male Literacy Rate			Gender Gap in literacy rate		
	1981	1991	2001	1981	1991	2001
A.P	.519	.60	.719	.481	.40	.281
Assam	-	.693	.777	-	.307	.223
Bihar	.356	.442	.566	.644	.558	.434
Gujarat	.593	.671	.728	.407	.329	.272
Haryana	.462	.599	.708	.537	.401	.292
H.P	.592	.693	.790	.408	.307	.21
Karnataka	.567	.656	.75	.433	.344	.25
Kerala	.872	.914	.936	.128	.086	.064
M.P	.392	.50	.649	.608	.50	.357
Maharastra	.591	.675	.790	.409	.325	.21
Orissa	.447	.555	.671	.553	.445	.329
Punjab	.713	.757	.842	.287	.245	.158
Rajasthan	.195	.363	.578	.805	.637	.422
T.N	.902	.689	.792	.098	.311	.207
U. Pradesh	.276	.446	.614	.724	.554	.386
W.B		.691	.769	-	.304	.231
India	.528	.603	.710	.472	.391	.290
C.V	**38.08**	**22.07**	**13.41**	**43.71**	**36.05**	**36.40**

Source: Various census reports, GOI.

Now so far as the employment is concerned we find a very high degree of discrimination against the female workforce as is revealed by the sex ratios on employment (i.e. % of female workers to the % of male worker in various sector) [see **Table-4**]. It follows from the table that the ratio assumes a very small value at the national average level ranging from .35 in 1981 to .40 in 1991 and further to .46 in 2001. The table reveals that while for 7 states these ratios are found to be higher than the national average ratio in 1981, the same for 11 states are found to be higher than the national figure in 2001. Now, if we judge the persistence of inequality between female and male pertaining to employment in terms of gender gap then we find that the same do not reveal an uniform trend neither across time nor across the states. While in some states we find it to increase between 1981 and 1991, in some other states we find a declining trend in the same during the same period. However, we find

the values of gender gap to experience a declining trend over the period between 1981 and 2001 in almost all the states excepting Maharastra and Kerala. It is surprising to note that while in terms of education, general parameter of gender discrimination i.e. FMR, Kerala perform the leading role against the gender inequality, in respect of gender discrimination in employment the state of Kerala is deplorable. Now so far as the interstate disparity in the sex wise inequality in employment is concerned the time profile of C.V. reveals a marginal declining trend from 45.33% in 1981 to 40.89% in 2001, albeit the degree of inter state disparity is formed to be very high.

Table-4: Ratio of female-male employment and gender gap in employment

States	Ratio of Female-male Employment			Gender Gap in Employment		
	1981	1991	2001	1981	1991	2001
A.P	.567	.601	.610	.433	.399	.390
Assam	-	.403	.921	-	.597	.079
Bihar	.254	.282	.365	.746	.718	.635
Gujarat	.367	.452	.468	.633	.548	.532
Haryana	.184	.191	.465	.816	.809	.535
H.P	.589	.670	.596	.411	.330	.404
Karnataka	.446	.521	.544	.554	.479	.456
Kerala	.381	.345	.018	.619	.655	.982
M.P	.529	.582	.592	.471	.418	.407
Maharastra	.534	.592	.533	.466	.408	.467
Orissa	.348	.375	.456	.652	.625	.544
Punjab	.100	.071	.311	.900	.929	.689
Rajasthan	.380	.505	.617	.62	.495	.383
T.N	.457	.516	.540	.543	.484	.460
U. Pradesh	.140	.218	.317	.860	.782	.683
W.B	.146	.200	.316	.854	.800	.684
India	.350	.400	.462	.650	.600	.538
C.V	45.33	43.26	40.89	25.66	29.78	37.65

Source: Various census reports, GOI.

On the other hand, so far as the gender discrimination in respect of FMR (see **Table-5**) is concerned we find the ratios to assumes a value greater than one not only at the all India

level but also for a few states viz. Uttar Pradesh, Maharastra, Madhya Pradesh, Gujarat, Bihar etc. in 1981 and for other states excepting West Bengal, Punjab, the same was found to be low ranging from .65 to .68 in 1981 and for rest of the states however, these ratio assume value very close to one. But it is surprising to note that in respect of sex ratio on IMR, Kerala assumes a value 13.33 in 2001, which is followed by Haryana(1.37), Punjab(1.73), Bihar (1.17), Gujarat (1.2), Madhya Pradesh (1.08), Rajasthan (1.08), Uttar Pradesh (1.1) & Assam (1.10). So what follows is that the female child mortality rate has increased and it is conspicuous in respect of Kerala. It seems that the sex selective abortion, hidden female infanticides, neglect of female child in respect of health care are the prominent reasons behind such discrimination. As we do not have any data pertaining to it, it is very difficult to establish this hypothesis quantitatively. Moreover what is surprising is that the degrees of inter state disparity as revealed by the time profile of C.V. has been decreased since 1981.

Table-5: Ratio of female-male IMR and gender gap in IMR

States	Female-male Ratio of IMR		Gender gap in IMR	
	1981	2001	1981	2001
A.P	.761	.937	.239	.063
Assam	.906	1.01	.094	-.01
Bihar	1.43	1.17	-.43	-.17
Gujarat	1.10	1.20	-.10	-.2
Haryana	.947	1.35	.053	-.35
H.P	-	-	-	-
Karnataka	.972	.946	.028	.059
Kerala	.911	13.33	.089	-12.33
M.P	1.03	1.08	-.03	-.08
Maharastra	1.05	.875	-.05	.125
Orissa	.860	.831	0.14	.169
Punjab	.654	1.73	.346	-0.73
Rajasthan	.840	1.06	.16	-.06
T.N	.927	.934	.073	.066
U.Pradesh	1.06	1.10	-.06	-0.1
W.B	.68	.849	.32	.151
India	1.06	1.04	-.06	-.04
C.V	20.25	21.95	325.51	-355.04

Source: Various SRS Bulletin, GOI.

4. Gender Discrimination Indices and its Cross State Variability

In this section we present the gender discrimination indices (GDI) across states as well as time that we develop and also analyse the nature of the inter-state disparity in respect of gender inequality on the basis of these indices. Further we also find out the important correlates of the inter-state disparity in gender discrimination. The inter temporal cross state regression results (see **Table-6**) clearly reveal that for the year 1981 the employment has been the statistically significant explanatory factor for the inter state variability of gender discrimination (FMR). However, for the year 1991, we find both the literacy rate and employment as a crucial vis-à-vis statistically significant determinant of the inter-state disparity in FMR. However, for the year 2001 none of these factors are found to be statistically significant and the value of adj. R^2 is also found to be poor. So on the whole we can say that female employment may be the crucial determinant for the reduction in gender discrimination as the economic freedom helps engendering both the social and political freedom of women in the society.

Table 6: Cross State Inter Temporal Regression Results for Gender Discrimination

Dependent Variable	No. of Observ.	Constant	Log(lit)	Log(Emp.)	Adj. R^2	F(2,12)
Log (SR-81)	14	3.013 (.009) [.0000]	.0381 (.0209) [.0955]	.581* (.0161) [.0041]	.566 (.013)	9.48
Log(SR-91)	16	3.01 (.010) [.0000]	.116* (.034) [.004]	.050* (.013) [.002]	.588 (.013)	11.72
Log(SR-01)	15	2.97 (.018) [.0000]	.080 (.099) [.436]	-.023 (.015) [.149]	.194 (.019)	2.69

Note: SR= Sex-Ratio, Lit.= Literacy, Emp.=Employment.

* = Significant at 1% level.

Figures in first brackets are standard errors and that of third brackets are p-values.

Now, **Table-7** presents the composite GDIs both across time and states. It is discernable from the table that at the national level the value of the GDI has increased tremendously from .37 in 1981 to .53 in 1991 and further to .74 in 2001. Moreover, almost all the states

have experienced a tremendous increase in the values of GDIs over the period between 1981 and 2001. While in 1981 the value of GDI ranges from the lowest figure of .13% in Kerala to the highest figure of .77 in Punjab, in 2001 the same ranges from the lowest value of .45 for Kerala to .87 for Bihar. Further most of the states assume value of these indices greater than .6 in 2001. So it is plausible to say that the degree of gender discrimination in its different spheres excepting literacy rate has increased tremendously over the period. However, it is a matter of solace that the inter state disparities in the gender discrimination (as is revealed by the time profile of C.Vs of GDI) has declined over the period.

Table 7: State wise Gender Discrimination Index in India during 1981-2001.

States	Gender Development Index		
	1981	1991	2001
A.P	.366	.360	.69
Assam	.34	.49	.58
Bihar	.25	.73	.87
Gujarat	.30	.46	.73
Haryana	.67	.76	.76
H.P	.19	.26	.53
Karnataka	.31	.39	.69
Kerala	.13	.19	.45
M.P	.34	.53	.75
Maharastra	.25	.39	.68
Orissa	.44	.50	.76
Punjab	.77	.69	.71
Rajasthan	.64	.65	.79
Tamil Nadu	.17	.51	.66
Uttar Pradesh	.67	.82	.86
West Bengal	.57	.60	.75
India	.37	.53	.74
C.V	**50.27**	**34.41**	**15.58**

Source: Computed from various census data.

5. Concluding Remarks

This paper examines the nature and dimensions of gender discrimination in Indian states. The analysis of census data leads us to draw the following conclusions. First, the use of conventional parameter of gender discrimination i.e. the FMR reveal that it is falling over time in almost all the states excepting Kerala. This clearly indicates an increasing tendency of gender inequality. Secondly, the cross state regression on the falling trend in FMR clearly

indicates a converging tendency across the states. Thirdly, we find that in almost all the states excepting Punjab, Kerala and Himachal Pradesh, the child sex ratio reveals a declining trend. What is surprising is that the inter-state disparities in this respect are also increasing. We also find a positive correlation between FMR and child sex ratio. The hidden female infanticides, sex selective abortion etc. seem to be the explanation behind this falling trend of child sex-ratio. Fourthly, the gender gap in the literacy rate is found to reveal a tremendous falling tendency across the states. Fifthly, the degree of gender discrimination in respect of employment has been found to be very high in almost all the states. Surprisingly, it reveals a slight declining tendency between 1991 and 2001 in almost all the states excepting Kerala & Maharastra. It is really surprising that gender inequality in respect of employment and IMR is highest in Kerala albeit, the same for literacy, FMR is low there. Sixthly, our cross state regression results reveal that gender gap in employment and literacy rate are the statistically significant explanatory factors behind the inter-state disparity in gender inequality. Finally, the gender discrimination indices clearly reveal a tremendous increasing tendency over time in almost all the states. However, the cross-state disparity in this respect reveals a declining tendency. Our study therefore engenders an interesting policy implication, which suggests that massive public action programmes for the increase in female literacy, and employment opportunities are the quint essentials for tackling with the problem of burgeoning gender inequality amongst the Indian states.

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Dynamics of Higher Education in Post-Independent India

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Abstract

This study is an attempt towards analyzing the impact of new economic policy on the changing 'pattern of demand' for the different subjects of education system in India. Here a two way approach has been undertaken- (i) 'Epoch break analysis' which attempts to find whether the adoption of new economic policy has altered the growth rate of general education and the other –(ii) 'Differential pattern of demand in the same epoch' illustrates how the growth rate among the different streams of education varied in the post reform period in Indian economy. It further shows that the economic liberalization has resulted in creating greater inclination towards those subjects, which help to reap higher dividend in the job market. Thus education plays more a role of human capital investment, as championed by Schutlz et al, rather than human consumption good, promoting grater human needs.

Key-words: Epoch break analysis; education system; human capital.

1. Introduction

As it was expected, the Indian economy and also her education system have undergone vast changes since independence. This is best reflected in the changing pattern of higher education, which includes growth rate of different subjects; changing preferences for different subjects over time, shift in market demand from one subject to another, introduction of newer subjects etc. This change in educational front is in tune with the changes in global scenario, which includes the social and cultural changes, infrastructural changes, economic changes and changes in science and technology. Again these changes are interrelated. The purpose of this study is to show how the higher education system of India is sensitive to these changes. Also special emphasis has been laid on the impact of 'economic liberalization' introduced in the early nineties, by the Indian government, on the Indian education system

Since the adoption of new economic policy, India has experienced a dramatic change in educational front. The new economic reform package i.e. inflow of foreign capital, policy of

liberalization and globalization has created more demand for professional education, particularly information technology. Human capital measured in terms of educational enrolment rate is correlated with Foreign Direct Investment (FDI) in developing countries (Noorbakhsh et al., 2001). Transnational Corporations (TNCs) are able to locate complex and skill-intensive affiliates only in countries that have a well-educated work force. In order to become more competitive in attracting FDI, it is important to provide quality education to the people, which suit the need of these firms. Good quality and appropriate, in this context means ability to absorb technical knowledge, especially in engineering (Velde, 2002). i.e., creation of a technologically equipped workforce which will be the main driving force for the rapidly changing global economy. In return globalization has increased the job opportunities for students of these technical/knowledge-based subjects. Actually, there exists a two-way nexus between globalization and technical education .In this paper, time-based and discipline-based changes after independence have been analyzed. To be specific the objectives of the paper are as follows:

2. Objectives of the Study

The objectives of the study are as follows:

1. Whether adoption of new economic policy has changed the demand of general education. To examine this, the model of 'Epoch Break Analysis' has been used.

2. To examine the changes in growth rates among different disciplines of professional and general education, in the post economic liberalization era of India by adopting the model of 'Differential Pattern of Demands in the same Epoch'.

3. Literature Review

This paper attempts to analyze the enrolment pattern in higher education after independence and also tries to find out the impact of economic reforms on the demand for different subjects and lastly analyzes the subject wise growth pattern. The literature is reviewed accordingly.

- Firstly studies based on the impact of the globalization, FDI, GATS/WTO on higher education or any specific area of higher education. In other words, whether higher growth rate of any subject can be attributed to changes made in economic reform front.

- Secondly, studies based on the analysis of asymmetric or unbalanced demand among the subjects.
- Thirdly, studies showing how to overcome the demand constraints and indicating policy measures to improve demand condition of those subjects for which growth rate is lower.

Noorbahsh et al (2001) showed that human capital measured by education enrolment rate is positively correlated with FDI in developing countries; implying countries with higher human capital are associated with more FDI.

Velde (2002) discussed the policy options available to policy makers in developing countries to attract FDI and influence the behabiour of Transnational Corporations, and he focused on the effects these corporations have on human capital formation and income inequality in the host countries. He discussed how FDI policy might have affected the interaction between FDI and human capital formation in developing countries.

Morris (1996) examined the role of technical education for the rapid development of the four 'Asian Tigers'; namely: Hong Kong, Taiwan, South Korea and Singapore. It was argued that whilst patterns of educational provision displayed some common features there were also significant differences in other areas, such as the role of the state, sources of educational funding, the role of technical education and of the school curriculum.

Lall (1996,2000) and Moran (1998) provided a general framework for understanding FDI and FDI policy. Both stressed the importance of host country policy to overcome information related market failure with regard to FDI. These included failure in development of technologies and skills, failure in the international investment process and failure to capture economy -wide benefits associated with TNCs.

Hachhethu (2002) analyzed the evolution of the social sciences (he considered four disciplines: history, political science, economics and sociology as the core of social science) in Nepal. He concluded that both the government and other institutions have constantly neglected the social sciences and offered some suggestions on the urgent changes that are required to be made.

Fredriksson (1997) analyzed the demand for university education in Sweden between 1967-1991. University enrolment rate were measured as the ratio of students enrolled at university level relative to the number of qualified leavers from upper secondary level (graduates). He

found a robust, positive and significant impact of public funding of education through grants and loans on the enrolment rate of the graduates of the upper secondary level in Sweden.

Using a time series framework for the years 1950-1982 Huijsman et al. (1986) found a significant impact of public funding of education on enrolment of males in Netherlands in higher education. They confirmed that other factors like per capita income have a much higher impact on enrolment.

The analysis of educational behaviour of young students in England and Wales by Whitfield and Wilson (1991) showed that government funding in employment and training schemes (YOP, YTS) which raises the attractiveness of alternatives to schooling reduces the enrolment in higher education.
Dynarski's analysis (1999) focused directly on the impact of eligibility for financial aid on college attainment. She found a highly significant positive impact of aid eligibility on college attendance and competition and a significant negative impact of the policy shift in 1982, on the youth, whose eligibility for financial aid was affected. Further she found evidence for financial aid having a thresh hold effect implying that public funds are best when they are generous for the first year of college and decreasing there after.

Winter-Ebmer and Wirz (2002) provided evidence for the impact of public funding on enrolment of the students in college. They used a panel data for European countries and applied instrumental variables techniques to find that public funding for schooling- regardless at what level- increased college enrolment. A second issue of concern was the impact of tuition fees, which were found to reduce college enrolment.

5. Methodology

In this study enrolment rate is taken as the realized demand for education with elements of nature of private marketed goods and public or merit good where typical market logic is not followed. In both the models 'Epoch break analyses and 'Differential pattern of demand in the same epoch' enrolment data is assumed to follow the exponential time path. i.e.,

$y_t = b_0 e^{b_1 t}$

y_t: Enrolment data

t: time period; 1950 is taken as the base period.

Taking log of both sides, we get

$\log y_t = \log b_0 + b_1 t$

or, $Y_t = B_0 + b_1 t$ Where $Y_t = \log y_t$ and $B_0 = \log b_0$

Before stating the methodology of the model, hypotheses are stated as follows:

$H_{1.1}$: $b_1i_1 \neq b_1i_2$ where,

b_1i_1: slope value of the fitted time path of the enrolment of ith subject in the first epoch.

i_1: arts (a_1), science (s_1)or commerce (c_1)

b_1i_2 : slope value of the fitted time path of the enrolment of corresponding subjects (a_2,s_2,c_2) in the second epoch.

$H_{2.1}$: $b_1i \neq b_1j$ where,

b_1i, b_1j: slope value of the fitted time path of the enrolment of i and jth subject in the first epoch respectively.

i, j: arts (a_1), science (s_1) or commerce (c_1)

But $i \neq j$

$H_{2.2}$: $b_1i \neq b_1j$ where,

b_1i , b_1j : slope value of the fitted time path of the enrolment of i and j th subject in the second epoch respectively .

i,j : arts, science, commerce, engineering, medicine, veterinary science, agriculture or dentistry

But $i \neq j$

To test the hypothesis $H_{1.1}$, F statistic has been constructed where,

$F = [(b_1i_1 - b_1i_2)^2 / \{\sigma_u^2 * (1/\Sigma T_i^2 + 1/\Sigma T_j^2)\}] / (RSS_1/\sigma_u^2)$,

$T_i = (t_i - t)$ t_i = time period of the first epoch

$T_j = (t_j - t)$ t_j = time period of the second epoch

To test the hypotheses $H_{2.1}$ and $H_{2.2}$, F statistic has been constructed where,

$$F = [(b_1 i - b_1 j)^2 / \{\sigma_u^2 * (1/\Sigma T_i^2 + 1/\Sigma T_j^2)\}] / (RSS_1/\sigma_u^2)$$

For both the cases if $F > F\alpha_1, \alpha_2$ alternative hypothesis is taken to be accepted.

α_1, α_2: corresponding degrees of freedom.

Model –I: Epoch Break Analysis

The model of epoch break analysis is specifically constructed for the testing of the first objective. i.e., whether the adoption of new economic policy has changed the demand of education. The second half of the twentieth century has been divided into two epochs – first one consists of the years after independence to economic reform, more specifically from 1951 to 1990 and second one incorporates years after reforms i.e., from 1991 to 1998. This model deals with enrolment data of graduate students only. On the basis of the data the following table has been constructed.

Table: 1: Enrolment of Graduates in General Education- Arts, Science and Commerce in the First Epoch

Year	t_i taken 1950 as the base	$T_i^2 = (t_i - t)^2 = (t_i - 23.33)^2$	artsg	scg	comg	totalgg
1951	1	498.63	269150	85440	36980	391570
1961	11	152.03	561290	217650	112970	891910
1971	21	5.43	1339400	625590	318560	2283550
1981	31	58.83	3242560	1434580	1054160	5731300
1985	35	136.19	4039840	1767880	1514700	7322420
1991	41	312.23	5501850	2430330	2468030	10400210

Source: IAMR, Estimates of Stock of Different Categories of Educated Manpower till 2001 A.D.

Courtesy: Institute of Applied Manpower Research, I.P. Estate, Mahatma Gandhi Marg, New Delhi-110002

Table: 2
Enrolment of Graduates in General Education- Arts, Science and Commerce in the Second Epoch

Year	t_i taken 1950 as the base	$T_i^2 = (t_i-t)^2 = (t_i-44.5)^2$	artsg	scg	comg
1991	41	12.25	5501850	2430330	2468030
1992	42	6.25	5796420	2568290	2672620
1993	43	2.25	6101340	2712020	2888820
1994	44	0.25	6410110	2859670	3110820
1995	45	0.25	6705100	3004600	3328000
1996	46	2.25	7008600	3154900	3552800
1997	47	6.25	7322700	3311100	3786300
1998	48	12.25	7663100	3479300	4037800

Source: IAMR, Estimates of Stock of different Categories of Educated Manpower up to 2001 A.D.
Courtesy: Institute of Applied Manpower Research, I.P. Estate, Mahatma Gandhi Marg, New Delhi-110002

On the basis of the above data b_1, RSS and corresponding F values have been computed and stated in the following tabular form.

Table: 3
The values of b_1, RSS_1 and F in both the epochs for streams in general education

Subject	Arts		Science		Commerce	
Epoch	1	2	1	2	1	2
b_1	.078382	.047011	.085910	.051013	.106946	.069949
RSS_1	.0379580	.00011503	.0965496	.0000078	.027451	.000431
$(b_1i_1 - b_1i_2)^2$	.000984		.0012178		.00136878	
F	.039897		.0494		.05549	

In this model $④_1=1$ and $④_2 = n_1-2 = 6-2=4$, where n_1 is the number of observation in the first epoch. Therefore, $H_{1.1}$ will be accepted if calculated value of $F < F_{1,4} = 7.71$ (at the 5% level of significance) and rejected otherwise.

Now,

$F_{arts} = 0.039897 < 7.71$ $H_{1.1}$ is accepted at the 5% level of significance.

$F_{sc} = 0.0494 < 7.71$ $H_{1.1}$ is accepted at the 5% level of significance.

$F_{com} = 0.05549 < 7.71$ $H_{1.1}$ is accepted at the 5% level of significance.

From the above discussion, it can be said that after adoption of new economic policy there is no change in the pattern of demand in education so far as general education is concerned whether it is arts, science or commerce.

Model -II Differential Pattern of Demands in the same Epoch

To test the second objective whether there are any changes among the professional and general education after reform, the model of differential pattern of demands in the same epoch has been taken. The chosen epoch is the years of reform and after reform starting from 1991 to 1997. The model deals with enrolment data of graduation –both general educations as well as professional education. General education consists of –Arts, Science and commerce where as professional education includes –Engineering, medicine, Veterinary Science, Agriculture and Dentistry.

Table: 4

Enrolment of Graduates in General and Professional Education in the Second Epoch

Year	t_i	$T_i^2 = (t_i-44)^2$	artsg	scg	comg	medg	engg	deng	agrig	vetg
1991	41	9	5501850	2430330	2468030	296400	519640	13930	168360	34360
1992	42	4	5796420	2568290	2672620	304000	553000	14770	174950	35470
1993	43	1	6101340	2712020	2888820	312000	587640	15670	181630	36610
1994	44	0	6410110	2859670	3110820	320750	623370	16630	188420	37790
1995	45	1	6705100	3004600	3328000	330000	663210	17600	195200	39000
1996	46	4	7008600	3154900	3552800	339800	704540	18600	202300	40200
1997	47	9	7322700	3311100	3786300	349800	751890	19700	209400	41400

Source: IAMR, Estimates of Stock of different Categories of Educated Manpower up to 2001 A.D.
Courtesy: Institute of Applied Manpower Research, I.P. Estate, Mahatma Gandhi Marg, New Delhi-110002

On the basis of the above data b_1, RSS and corresponding F values have been computed and stated in the following tabular form.

Table: 5

Showing the Values of b_1 and RSS_1 for general subjects for the years 1991-1997

Subject	Arts	Science	Commerce
b_1	.047566	.051487	.071242
RSS_1	.000089	.0000595	.0002906

Table: 6

The Values of b_1 and RSS_1 for Professional Subjects for the years 1991-1997

Subject	Engineering	Medicine	Agriculture	Veterinary Science	Dentistry
b_1	.061204	.027704	.036321	.031170	.057750
RSS_1	.00001225	.0001647	.00001167	.00000502	.0000142

Table: 7
The F Values for pair wise comparison of the streams in general education for the first epoch

Subject	Arts	Science	Commerce
Arts	-	-	-
Science	0.868	-	-
Commerce	12.50	1.535	-

In the first epoch for one case calculated F value accedes theoretical F value.

$F_{arts.\ com} = 12.5 > 6.61$ $H_{2.1}$ ($b_{1arts} \neq b_{1com}$) is rejected at the 5% level of significance.

- In the first epoch growth rate of Commerce is significantly different from that of Arts.
- In the first epoch growth rate of Commerce is not statistically different than that of Science.
- In the first epoch growth rate of Arts is not statistically different than that of Science.

Table: 8
The F values for pair wise comparison of the streams in general and professional for the years 1991-1997

Subject	Arts	Science	Com	Eng	Med	Ag	Vg	Dg
Arts	-	-	-	-	-	-	-	-
Science	2.41	-	-	-	-	-	-	-
Com	88.02	91.86	-	-	-	-	-	-
Eng	29.21	22.22	4.85	-	-	-	-	-
Med	61.95	133.13	91.32	1282.57	-	-	-	-
Ag	19.86	54.14	58.75	707.62	63.12	-	-	-
Vg	42.21	97.16	77.36	1030.9	10.21	31.83	-	-
Dg	16.29	9.23	8.77	13.63	767.38	550.89	140.74	-

In this model $④_1=1$ and $④_2 = n_1-2 = 7-2=5$, where n_1 is the number of observations. Therefore, H_2 will be accepted if calculated value of $F < F_{1,5} = 6.61$ (at the 5% level of significance) and rejected otherwise.

In the second epoch for two cases theoretical F values accede calculated F values.

$F_{arts.\ sc} = 2.41 < 6.61$ $H_{2.2}$ ($b_{1arts} \neq b_{1sc}$) is accepted at the 5% level of significance

$F_{com.\ eng} = 2.41 < 6.61$ $H_{2.2}$ ($b_{1com} \neq b_{1eng}$) is accepted at the 5% level of significance

From the above discussion following observations can be made for the second epoch:

- Among the subjects of general education growth rate of Commerce is significantly different from other two subjects in the second epoch.
- Growth rates of Arts and Science are similar in the second epoch.
- Pair wise growth rates of any two professional subjects are statistically different.
- Among the general and professional subjects growth rate is highest in Commerce and engineering respectively.
- Growth rate in the case of commerce as well engineering is statistically similar.

Comparing the relative growth rates of Commerce and Science in both the epoch, the data reveal that in the first epoch growth rate of Commerce is not statistically different than that of Science where as in the second epoch the growth rates are significantly different and that of Commerce is higher than that of Science. The likely interpretation is that the new economic policy may shift the students from Science to professional courses specifically to Engineering rather than medicine owing to following reasons.

- Less capital investment.
- Low payback period.
- Low risk.
- Short gestation period.
- Higher present rate of earning compared to future rate of earning.

These, however, requires further investigation and research work.

5. Conclusion

The actual choice of any subject mainly depends on three factors- (i) psychological factor i.e. willingness/desire/preference to pursue (purchase) the course; (ii) availability of the preferred course and (iii) economic capacity to pursue the course. Willingness to pursue any course is again associated with the return from the course. Return may be in form of sense of inner satisfaction (utility), job opportunity associated with its long term status, social prestige, money etc. Since the advent of the globalization education has become oriented more towards income generation and it is being regarded more as investment good rather than consumption good. As the concept of investment for education purpose came into being the priority was given to return from such investment. Comparing each subject with different instruments of investment, one's tendency would invest in those subjects from which return

is high and at the same time of low risk. Among all these professional subjects engineering is the least risky since the earning opportunities are high after completion of engineering disciplines. Alternatively the gestation period in the case of engineering is small resulting in highest dividend in the least period of time (investment). As a result both demand and growth rate in the case of engineering disciplines is high. Similarly is the case of commerce related subjects where opportunities have grown by leaps and bound since the arrival of the concept globalization. In contrast in the case of 'medicine' the gestation period is very long and in most cases the return is also low compared to the scale of investment. So, investment in medical courses bears greater risk, which has resulted in low growth rate of enrollment in medical studies. Whereas for the subjects connected with general education, it can be seen that the growth rate of these disciplines as compared to engineering is low, an indication that general education is being neglected. As Waltzer (2000) comments: 'advocating on behalf of the general education / core curriculum in a large research-led university is challenging in the face of students disinterest in liberal general education.... most students think of them (general education subjects) as required courses to be got out of the way'. However, reasoning and problem solving skills through general education enhances persistence by facilitating students' successful adoption to the intellectual demands of the academic programme (Pacarella and Teenzini, 2005). Forrest (1982) also found that a positive correlation between the proportion of general education subjects in UG degree programme and students' general intellectual and analytical skills, presumed to be necessary for the individual to function and adapt to a complex society.

Since the professional courses require substantial individual investment, most of the students who come from lower /middle income group and have a tendency to avoid risks do not have an opportunity to take up this courses which in turn results in social loss. According to Kremer (1993) 'the presence of a liquidity constraint for students due to the lack of sufficient income or capital market failures when deciding on participation to higher education has three major effects: (i) a loss of talent since high ability low income students will be deter to apply for higher education generating an inefficiency and social loss, (ii) a loss of opportunity to individuals and (iii) a strengthening of the link between family back ground and life time income'.

Hence for ensuring balance growth of knowledge in a society it is necessary to harmonize the traditional knowledge (as imparted through general courses) and the technical skills acquired through the professional courses. In order to correct this lopsided growth among different disciplines of education intervention of the state is necessary. The following

initiatives on part of the government will help to change the tide towards proper growth among different disciplines- financial aid, educational loans at low interest, waiver of tuition fees, public funding of education etc.

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A Critical Analysis on Capital Financing

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Abstract
In this paper, an attempt has been made to present critical comments on the conventional idea of financing capital and the concept of cost of capital to bring out their loopholes. A new concept of financing capital, based on outflow of cash, 'EOR' is introduced. The viability of the new approach is established with empirical data and the results show that the companies in the sample are following a wrong way to finance their capital. Along with it a 'result projection' is made to highlight the extent of adverse effect the firms are facing for being in the wrong track. The paper concludes by pointing out the probable outcomes if companies adopt this model for financing their capital and putting up the present scenario of the trend of investment along with some supporting examples.

Key-words : Capital financing; Cost of Capital; Cash Outflow Based Model; EOR; Equity vs. Debt; Booster; Government Revenue; Profit.

1. Introduction

The capital of a business is financed through numerous sources, which are utilized for the creation of fund required for running a business. These funds are procured subject to some payments of rewards in exchange of using them. The amount of money paid in this respect is named interest or dividend depending upon the nature of the sources. The business always tries to increase the surplus through controlling all kind of costs and that of capital also. Hence, business always opts for those sources of capital, which bears minimum cost in order to generate maximum surplus. In other words, those sources will be preferred to, which will minimize the outflow of funds.

2. Background

For choice of preferable sources of capital the simple and preliminary conventional idea says that when the rate of profit earned is less than the rate of payable interest on 'Debt', the company will suffer loss and equity financing is preferable, as dividend rate can be reduced to avoid loss. On the other hand, when the rate of profit earned is more than the rate of interest paid on 'Debt', the equity may not be preferable. As at this stage, the dividend rate will be higher and will ultimately increase the out flow of funds. But this convention has

certain loopholes like:

- The rate of dividend is shown only as a percentage on the face value of the shares.
- For the estimation of rate of dividend and specially the share premium (which is a direct investment by the investors) it does not consider the 'Reserve and Surplus' (a source of financing ownership capital).
- 'Redemption Reserve', 'Capitalisation of interest', 'Writing off discounts', etc are not considered as well.
- Tax factor is not considered and
- There lies a chance to adjust the dividend pay-out limiting the amount of cash outflow and increasing the capital.

These shortcomings are dealt with by introducing the cost of capital concept. There cost of debt is obtained by a complex formula considering all relevant factors like tax rate, interest rate, face value, issue price and redemption factor i.e. amount of amortization required for redemption purpose [Note 1]; and cost of equity is calculated with the help of market price of the equity shares [Note 2]. But, practically, it is difficult to calculate cost of 'Debt Capital' because in a business 'Debt Capital' is procured from numerous sources at different point of time with differences in their face value, issue price, expiry period and rate of interest. On the other hand, in case of equity capital, the 'reserve and surplus' is incorporated indirectly through considering market price of the share. But in practice, the 'market price' turns out to be a problematic item. We all know that the market price fluctuates very much depending mostly on public sentiment and speculation. Therefore, the market price consists of a factor of subjectivity which will affect the calculated cost of equity to a certain degree.

3. Objectives of the Study

In practice the case studies show that without going through the complex calculations for finding out cost of capital the Indian companies are following the simple and preliminary conventional idea and having a tremendous adverse effect. In this paper we will build up and establish a model namely, 'Effective Outflow Rate' or the 'EOR', based on outflow of cash (all actual, accrued, direct and indirect) for maintaining capital that will not only simplify the calculation of cost of capital and also bring accuracy to the required purpose by replacing subjective items like 'Market Price' with 'Net Asset Value' of the firm, etc. Then we will make case study with some Indian company and with those empirical data we will establish that the companies are following a wrong way to finance their capital. Along with it we will also make a 'result projection' to highlight the extent of adverse effect the firms are facing for

being in the wrong track. Lastly we will conclude the paper after pointing out the probable outcomes if the companies switch over to this model for financing their capital and trend of the present investment scenario.

4. Terminology

Here we will try to analyze different sources of capital and build up the 'EOR' model in order to find out which source will be the most preferable and when. In this process, we cannot compare, between the outflow for maintaining capital of different sources directly because some are paid out of after tax profit and some are out of before tax profit. Therefore, we will make adjustments for the tax factor with all those outflows required for maintaining capital, which are paid out of pre-tax profit. This 'tax adjusted outflow for capital will enable us compare the effective cost of different sources of capital. Here, a point to be noted is that outflows out of after-tax profit require no adjustment for the tax factor. Now for building up EOR, first of all, we will need to redefine as well as abbreviate certain items.

Definitions and Abbreviations Used

1. **Capital Employed:** The entire capital employed in the business at the beginning of a period will be taken as 'Capital Employed'. This is represented by 'C and depending upon the nature and sources it will be broadly divided into two main heads, (a) Debt and (b) Equity Holders' Fund.
2. **Debt:** 'Debt' is defined as redeemable and fixed interest bearing source of financing capital and this interest is paid before any payment of direct tax. This being a contractual payment, it has to be paid irrespective of the amount of profit earned or loss incurred. The providers of 'Debt' are outsiders to the business. Hence, the capital financed through 'Debt' is known as outside liabilities and those are to be repaid in due time. This repayment is termed as redemption. Debentures, Loans (secured and unsecured) and Deposits from different corners, etc, are a few examples of'Debt'. For the purpose of our analysis, depending upon 'fixed interest bearing' and 'redeemable' characteristics, 'Redeemable', 'Cumulative' and 'Non Participating' Preference Shares are also placed in this category. 'D' will denote the ratio of'Debts' to 'Capital Employed' (C). So, the entire 'Debt' is represented by 'CD'.
3. **Equity Holders' Fund:** Equity Holders' Fund is defined as dividend (i.e., variable interest) bearing sources of financing capital and this dividend is paid out of 'after-tax profit'. The providers of this fund are the owners of the business. Hence, the

company does not have to repay the capital financed through 'EHF'. At the time of winding up or liquidation, Equity holders are entitled to the balance of the entire property of the business, available, after meeting all the outside liabilities. Hence, this source is known as the internal source of financing. 'EHF' in the discussion actually means the 'Equity Share Capital' along with all those funds, which actually are owned by the shareholders, such as 'Reserve and Surplus'. In a business, profit is earned through using the capital and therefore, the profit is the property of the owner or the Shareholders of the business. Thus we incorporate 'Net Asset Value' method. The retained profit, represented through 'Reserve and Surplus' head, can be taken as the further investment of the Shareholders, for the coming period, after they take over all their receivables from the business. Preference shares may also be included in this head when those are 'Non-Redeemable', 'Non-Cumulative', and 'Participating' in nature. To evaluate the actual amount of 'EHF', 'Reserve and Surplus' is to be taken into consideration as it is used in the business for the period to earn profit. 'E' will denote the ratio of 'Equity Holders Fund' to 'Capital Employed'. So, 'CE' will represent entire 'EHF'.

4. **Profit:** Total earnings of the business after charging all expenses and depreciation but before charging interest and tax (EBIT), is taken as the profit of the firm. Here, 'p' will denote the profit rate or the ratio of the 'EBIT' to 'Capital Employed'. Therefore, p = (EBIT) / (CE ÷ CD).
5. **Interest:** All payments made for the 'Debt' are altogether taken as interest. The rate of interest or the ratio of 'Interest' to 'Debts' is represented by I. Hence, total interest to be paid is 'CDI'.
6. **Dividend:** Payments to be made for the 'EHF' (including tax thereof) will be considered as 'dividend'. The rate of dividend or the ratio of 'dividend' to ' EHF' is denoted by 'd'. Therefore, 'CEd' will be the entire amount of dividend.
7. **Tax:** Actual payment or created provision for tax is named as tax. Rate of tax or the ratio of 'Tax' to 'Profit before Tax (PBT)' is denoted by 't'. So, total amount of tax will be (PBT)t, where, PBT = EBIT – CDI.

5. The Model

We now will build up our model where 'Capital' (C) consists of 'Debt' (CD) and 'EHF' (CE) and C = CD ÷ CE. Profit earning rate p = EBIT / (CD÷CE) and outflow for interest, adjusted as per previous discussion, will be 'CDF where T is the rate of interest. Outflow for tax will be (Cp – CDI)t, where t is the existing tax rate for the company. From the

remaining profit i.e. Cp – CDI – (Cp – CDI)t, dividend 'CEd' (as defined earlier) will be distributed on 'CE' @ 'd'\ Let, 'A' denote the rate of creation of Redemption Reserve or the ratio of 'Redemption Reserve' to 'Debt ÷ Premium/Discount'. So, amount transferred to the 'Redemption Reserve' will be denoted by 'CDA'.

Therefore, the outflows from the profit 'Cp' will be: -

CDI ÷ (Cp – CDI)t + CEd ÷ CDA.(where I = interest paid ÷ interest accrued ÷ interest capitalised and 'D (Debt)' is net of capitalised interest)

= CDI ÷ Cpt – CDIt ÷ CEd ÷ CDA

= CDI ÷ (CD ÷ CE)pt - CDIt ÷ CEd ÷ CDA (putting C = CD ÷ CE)

= CDI ÷ CDpt ÷ CEpt - CDIt ÷ CEd ÷ CDA

= CDpt ÷ CDI – CDIt ÷ CDA ÷ CEpt ÷ CEd

= [CD {pt ÷I (1 -t) ÷ A }] ÷ [CE { pt ÷ d }]

= [Effective outflow for Debt] ÷[Effective outflow for EHF]

So, for Debt capital 'CD', the 'EOR' is :–

[CD {pt ÷ I (1 -t) ÷ A }I / [CDI] = $\underline{pt \div I(1 - t) \div A}$

And, for Equity capital 'CE', the 'EOR' is: -

[CE {pt ÷ d}] / [CE] = $\underline{pt \div d}$

Comparing the outflows of the two cases, 'pt' being common, we can deduce: -

For, d < I (1 - t) ÷ A ..... Equity Holders Fund or in short Equity Capital is preferable.

For, d = I (1 -t) ÷ A .....A level of indifference arises.

For, d> I (1 -t) ÷ A ..... Debts are preferable.

[The case of p < I is not considered as at that stage payment of interest will lead to drainage of capital. Here 'EHF' is preferable along with the situation where the company incurs loss (p < 0).]

6. Illustration And Deduction

Now, to show the functioning of the expression, we take certain imaginary but reasonable values.

Say, I = 10%, t = 40%, and A = 5%. Therefore:–

I (1-t) ÷ A = 0.10(1 -0.4)÷ 0.05 = 0.11 or 11%

In this case EOR of 'Debt' is 11%. Under such circumstances, if dividend is paid at any rate below or upto 11% on the 'EHF', TACC of the 'EHF' will be less than 11%. So, here 'EHF' will be preferable. A point to be noted here is that this '11%' is on the 'EHF', i.e. the

summation of all the items in this category. So when the percentage of the figure of dividend will be calculated upon only the paid up value of the shares, it will be much higher than 11%. Thus, it can be established that payment of dividend at a higher rate, than the rate of interest on 'Debt', does not always mean that 'EHF' is costly. This result suggest the proposition -

For p < I, the 'EHF' is always preferable as in such case, the excess rate of I over 'p' will drain out capital. Here, for 'EHF', the dividend can be reduced to stop the undesirable and adverse outflow. For the case p > I, the EOR of 'Debt' to be found out. In those cases where EOR of 'Debt' exceeds that of 'EHF' (as in the illustration), 'EHF' will be preferable and not the 'Debt'. Thus, the following proposition can be deduced: ***For financing capital 'EHF' is always preferable except when p> I along with EOR of 'EHF' exceeding that of 'Debt'.***

7. A Case Study

We now proceed to use a case study to obtain actual results from the empirical data. For this purpose we will study the published 'Balance Sheet' of different companies. The main problem faced in this process is to tackle so many heads of accounts used and the lack of transparency in those documents. (How the problems are tackled is discussed in detail in the Note 3).

Observation

A study of 91 companies has been made. Among them it was found that 25 companies are to be set aside since those are either operating without any debt or are exempted of paying tax. Out of 91 companies, 32 are running with a debit balance of profit (loss) while other 13 companies are making profit but their 'p' < I. The cases of the companies running with loss or having p < I, are undisputed. Equity will be preferable at this situation. So for all these 70 cases 'EHF' is preferable to 'Debt'. Out of the remaining 21 companies 18 have their 'p' > I but EOR of 'Debt' > EOR of 'EHF' (Table - 1). So, here also, 'EHF' is preferable to 'Debt'. There remain only 3 cases where it is found that 'p' > T and EOR of 'Debt' < EOR of 'EHF'. So, the case study suggests that for 88 companies out of 91 i.e. for 96.7% companies 'EHF' is preferable to 'Debt'. The most important point to be noted here is, as per the conventional idea for all the 21 companies having p>I, 'Debt' should be preferable, but EOR study suggests that for 18 companies out of those 21, 'EHF' should be preferable.

TABLE – 1

Sl No.	1	2	3	4	5	6
Company	H E G Ltd	L&T Ltd.	Cent. ENKA	Reliance Ind Ltd	Colgate Pal Ltd	Nagarjuna Fert
Year	96-97	96-97	99-2000	97-98	99-2000	96-97
Equity	4031	24849	3001	93190	13599	33137
Rsv & Surp	10060	260929	40759	801249	15775	46960
E H F	14091	285778	43760	894439	29374	80097
Debt	27125	198012	29193	843528	85	106125
Cap. Emp.	41216	483790	72953	1737967	29459	186222
E.B.I.T.	6290	82686	11660	199309	7922	42058
Interest	3142	21129	3985	68941	21	17352
P.B.T.	3148	61557	7675	130368	7901	24706
Tax	1216	20422	2560	44396	2722	8586
Dividend	668	16431	1332	29924	4529	6561
EXP WO.	53	2367	144			
Red. Rsv.	224	5000	1547	6447		385
Others	53					
Net Rsv.	277	5000	1547	6447	0	385
d (% Eqty)			25%		30%	
P	15%	17%	16%	11%	27%	23%
I	12%	12%	14%	8%	25%	16%
t	39%	33%	33%	34%	34%	35%
A	1%	3%	5%	1%	0%	0%
I(1 - t) ÷ A	8%	10%	15%	6%	16%	11%
d (/ Re)	5%	6%	3%	3%	15%	8%
D / E	1.93	0.69	0.67	0.94	0.00	1.32
EPS (/Re)	0.48	1.66	1.70	0.92	0.38	0.49
Mkt Val/Re	3.50	11.50	14.58	9.60	2.16	2.42
d % (Cal)	17%	66%	44%	32%	33%	20%

TABLE – 1 (Contd.)

Sl No.	7	8	9	10	11	12
Company	Tezpore Tea	Forbes Gokak	Balmer Lawrie	Mahindra &. Ltd	Vishwas Stl Ltd.	Apollo tyres
Year	98-99	99-2000	97-98	1996	96-97	99-2000
Equity	228	1245	1629	10179	762	3632
Rsv & Surp	5024	16691	12306	69136	56	28194
EHF	5252	17936	13934	79316	818	31826
Debt	503	8857	25928	37783	1517	32824
Cap. Emp.	5755	26793	39863	117099	2335	64650
E.B.I.T.	801	6521	5607	34038	591	16816
Interest	44	1331	2985	5630	198	5178
P.B.T.	757	5190	2621	28408	393	11638
Tax	238	2079	980	11600	134	4119
Dividend	177	1382	573	4414	0	1927
EXP W.O.					6	
Red. Rsv.				751		1634
Others				54		
Net Rsv.	0	0	0	805	0	1634
d (% Eqty)		100%	30%	45%		
P	14%	24%	14%	29%	25%	26%
I	9%	15%	12%	15%	13%	16%
t	31%	40%	37%	41%	34%	35%
A	0%	0%	0%	2%	0%	5%
I(1 -t)÷A	6%	9%	7%	11%	9%	15%
d (/ Re)	3%	8%	4%	6%	0%	6%
D/E	0.10	0.49	1.86	0.48	1.86	1.03
EPS (/Re)	2.27	2.50	1.01	1.65	0.34	2.07
Mkt Val./Re	22.99	14.40	8.56	7.79	1.07	8.76
d % (Cal)	78%	111%	35%	43%	0%	53%

TABLE – 1 (Contd.)

Sl No.	13	14	15	16	17	AVERAGE
Company	EIH Ltd Oberoi	Godj Prop	Godj Soap	Hindmotor Ltd	Pfizer	ALL COMP
Year	99-2000	98-99	99-2000	97-98	96-97	
Equity	5239	637	5979	10757	1172	12545
Rsv & Surp	91470	2634	22051	16572	5370	85014
E H F	96709	3270	28029	27329	6542	97559
Debt	41419	4323	34256	45192	2084	84633
Cap. Emp.	138128	7593	62286	72521	8626	182192
E.B.I.T.	13801	642	14533	10834	2301	26848
Interest	3157	338	6872	6418	204	8643
P.B.T.	10644	304	7661	4416	2098	18205
Tax	3396	107	2549	1449	720	6310
Dividend	2956	122	1623	1182	387	4364
EXPW.O.				26		519
Red. Rsv.	65			500		1839
Others			335			147
Net Rsv.	65	0	335	500	0	1987
d (% Eqty)						
P	10%	8.5%	23%	15%	27%	15%
I	8%	7.8%	20%	14%	10%	11%
t	32%	35%	33%	33%	34%	35%
A	0%	0%	1%	1%	0%	2%
I(1 - t) ÷ A	5%	5%	14%	11%	6.4%	9%
d (/ Re)	3%	4%	6%	4%	5.9%	4%
D / E	0.43	1.32	1.22	1.65	0.32	0.87
EPS (/Re)	1.38	0.31	0.86	0.28	1.18	0.95
Mkt Val/Re	18.46	5.14	4.69	2.54	5.58	7.78
d % (Cal)	56%	19%	27%	11%	33%	35%

So, the case study suggests that for 88 companies out of 91 i.e. for 96.7% companies 'EHF' is preferable to 'Debt'. ***The most important point to be noted here is, as per the conventional idea for all the 21 companies having p > I, 'Debt' should be preferable, but EOR study suggests that for 18 companies out of those 21 'EHF 'should be preferable.***

Result Projection

The aggregate 'Balance Sheet' of 17 companies out of those 18, having p > I, and EOR of 'EHF' less than that of 'Debt', is obtained (Table - 1). Some of the figures of that aggregate 'Balance Sheet' are: -

CE = EHF = Rs.97559 lakhs, where, Equity is Rs. 12545 lakhs and 'Reserve & Surplus' is Rs.85014 lakhs. Debt or CD is Rs.84633 lakhs. Calculated p = 15%, I = 11%, t = 35%, A = 2% and percentage of dividend calculated on the paid up value of 'Equity' is 35%. Calculated EOR of 'Debt' is 9% while that of 'EHF' is 4%.

In conventional terms, here, cost of 'Equity' will be 35% and cost of 'Debt' will be 11%, which is yet to be analyzed by the tax factor. Hence, 'Debt' will be highly preferable to 'Equity'. But in terms of EOR, EOR of 'Debt' is 9% while that of 'EHF' is 4%. So, 'EHF' should be preferable here. To alleviate this dispute, we will replace 'Debt' by 'EHF', step by step, by four different percentages (25%, 50%, 75% and 100%) in order to observe the changes in the figure of the outflow. In such a situation, if the outflow increases we will conclude that the conventional idea is acceptable and there may be some defects in the EOR concept. But, if the outflow decreases with the replacement of 'Debt' by 'EHF', it will be preferable to replace conventional idea with the EOR concept.

In the following table (for estimation of the change over), the 'Average All Comp' column of 'Table-1 (Contd.)' will be taken as the base. There we will replace the 'Debt' by 'EHF', as mentioned earlier. 'EHF' will replace 'Debt', so, 'Capital Employed' and 'EBIT' will not change. The average rate of T, 'd', 't' and 'A' (obtained from the average col.) will be applied to estimate the amount of 'interest', 'dividend', 'tax' and 'reserve creation' respectively. Then we will calculate the net effective outflow of the company by adding up the values of 'interest', 'dividend', 'tax', and 'redemption reserve' for each case.

Table for Estimation of The Change Over

HEADS (formula for projection)	Avg.of All Companies	% of 'Debts' Converted to 'E H F'			
		25%	50%	75%	100%
1. EHF.	97559	118717	139875	161034	182192
2. Debt	84633	63475	42317	21158	0
3. CapEmp(1+2)	182192	182192	182192	182192	182192
4. E.B.I.T.	26848	26848	26848	26848	26848
5. Interest (2 x I)	8643	6482	4322	2161	0
6. PBT (4 - 5)	18205	20366	22527	24687	26848

7. **Tax** (6 x t)	**6310**	**7059**	**7808**	**8557**	**9306**
8. Dividend (lxd)	4364	5310	6257	7203	8150
9. Exp W.O.	519	389	260	130	0
10. NetRsv. (2xA)	1987	1490	994	497	0
Outflow (5÷7÷8÷9÷10)	**21304**	**20342**	**19380**	**18418**	**17456**
P	**15%**				
I	**11%**				
T	**35%**				
A	**2%**				
I(l-t) ÷ A	**9%**				
d(/Re)	**4%**				
SOURCE	Table - 1	**PROJECTION WITH AVERAGE RATES**			

Findings

The table shows the result that as the source of capital is changed from 'Debt' to 'EHF', the amount of 'tax' increases while 'outflow' decreases. These changes are shown below :–

PARTICULARS	**VALUES**			
'EHF' replacing 'Debts' by	**25%**	**50%**	**75%**	**100%**
INCREASE in payable 'Tax' over existing amount	12%	24%	36%	47%
DECREASE in 'Effective Outflow ' over existing	4.5%	9%	13.5%	18%

The study revels that the total outflow continually decreases as the company changes over gradually from 'Debt' to 'EHF'. So, the concept of EOR is preferable to conventional idea. Also it is evident that, if EOR concept is adopted, the Government will earn more as tax and at the same time it will be beneficial to the corporate sector. Profit of the corporate sector will go up by around 14% [Note 4] and that is the extent to which they are now affected.

8. Probable Outcomes

⊐ *Effect On Investors*

If the proposition is accepted, the mode of investment is sure to change. Nowadays, while investing, common people always enjoy a choice between 'Risk Free Bonds' (Debts) and 'Equities'. But, after the acceptance of the proposition no Corporate Sector will opt for 'Debts'. So, the common people, wanting to invest their money in companies, will have no

choice other than to invest in 'Equities'. The conservative investors, having little interest in investing in 'Equities' will be forced to invest in Government bonds, as the financial institutions are also likely to reduce or even stop issuing 'bonds', 'fixed deposits' etc. This action of the financial institutions will be discussed in the next section.

☐ *Effect On Financial Institutions*

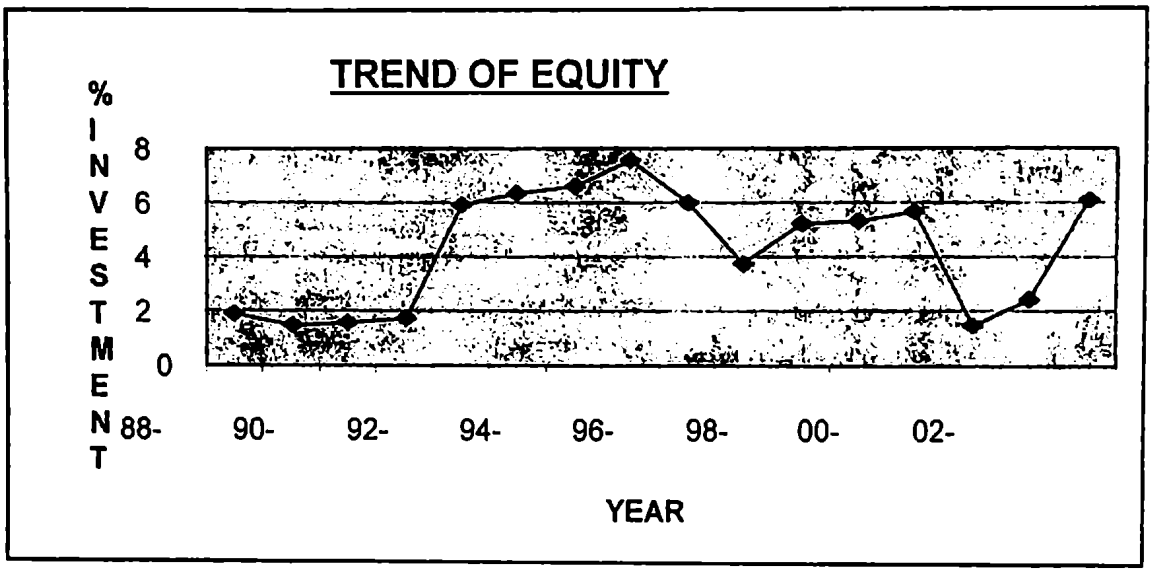
The main objective of the financial institutions is to accumulate fund from the public by providing interest, lend those to the corporate sectors or others at a higher rate and earn profit. But on acceptance of the proposition the corporate sector will stop taking loans. This will lead to a stoppage of the income. So they will be unable to provide interest to the public and their existence will be at a stake if they fail to change their objective. It can be suggested that the motive of the financial institutions should be, charging the customers for providing them service of keeping their funds in safe custody and providing facility in transaction, instead of allowing them interest and if interest to be given invest more in company equity like mutual funds.

☐ *Effect On Government*

If the corporate sector adopts the proposition the 'corporate tax revenue' of the Government will increase considerably. Again for the change of the objective of the financial institutions, as discussed earlier, the entire deposit from conservative investors will go to the Government. This will heavily increase the Government earnings. But side by side the Government will also be affected for there will be a heavy burden of interest payment upon the Government with an increase in the deposit from private sector. This can be avoided through proper utilization of fund and careful structuring of the interest rate.

9. **Present Scenario**

Before concluding it is essential to evaluate the present trend of investments that are taking place because it is recommended by all to make soil—testing before plantation. Among total investments in 'Debt' and 'Equity', percentage of investments in equity was below 20% before 1992-1993 and it got a boost through announcement of the new industrial policy and positive activity of 'SEBI'. From then on it is over 50% mark and reached a high of 75.6% in 1995-1996, with a few exceptions for certain specific causes like Harshad Meheta scam and budget of the Central Government. The trend is depicted by a line diagram below.



Besides this growth in investment towards equity the number of 'extra large capital stocks in the S 5 billion' range have been increased from just 4 in 2001 to 14 in 2004. This implies that there is a positive trend to invest in equity and it is, therefore, the high time for the firms to replace their 'Debt' with 'Equity' as is proposed by the 'EOR' model.

A practical example of a company benefiting from the suggestion to replace 'Debt' with 'Equity' which will surely interest all concerned to adopt 'EOR' model 'Aravind Mills', an Ahmedabad based unit in textile industry was ailing with little market value of its equity shares. For revival it took up debt buyback scheme to reduce its debt by atleast Rs.550 Crores (*The Telegraph, dtd 06.02.2001. page 21*). As a result, on 10.10.2005 market price of its equity share of Rs.10 is Rs.137/8 (*Times Of India, dtd 11.02.2005. page 12*).

Another example is the 'National Electricity Act, 2005' where directives are given not only to reduce debt in power sector from 90% to 70% by issuing equity, but also to replace high interest bearing loans with new low interest bearing loans. The act also provides to charge advance against depreciation so that with the accumulated fund the existing debts can be repaid within 10 years in order to reduce interest burden.

10. Conclusion

'EOR' may be criticized on the ground that for short-term requirement of capital if the business issues equities, after the fulfillment of the objective the firm will face the problems of over capitalization. On the other hand, being in the developing and highly competitive environment, for this excess capital the business will be forced to grow which will be beneficial to all. So the apparent demerit is an indirect merit of the model.

To conclude we can say that adoption of 'EOR' will be benefiting for both the Government and the Corporate Sector. It will have the support of the boost in the trend of the common people to invest in equities and will lead to a huge growth in capital formation of the economy. It may be criticized for increasing the risk factor, both in industry and investment. The simple answer is when the atmosphere is risky the upward and downward movement will balance each other keeping the economy in equilibrium to a satisfactory degree.

END NOTES

Note 1

$$K_d = \frac{[C + 1/n(P - I)](1 - t)}{1/2(P + I)}$$

where, K_d = Cost of Debt Capital

C = Fixed interest charge per annum.

n = Expiry period

P = Face value of Debt

I = Issue price

t = Marginal rate of tax

Note 2

$$K_e = \frac{D}{P} + g$$

Where, K_e = Cost of Equity Capital

D = Dividend per Share

P = Current market price of share

g = Growth rate in earnings

Here, we ignore earnings per share growth model as entire earning per share is not entirely outflow.

Note 3

All the items of the 'Balance Sheet' are categorically analysed and grouped together under different relevant heads as was defined earlier.

To evaluate EHF, 'Reserve & Surplus' is taken as it is found, or should be, in the opening 'Balance Sheet' for the period because it is the fund, which is used in the business for the period to earn profit.

While finding out the 'EOR' of 'Debt', creation of 'Redemption Reserve', 'Capitalisation of Interest', etc, will be considered as a factor. As because, though it is not an outflow for that particular period in which it is created, but actually it is a reserve for future outflow (on maturity of 'Debt') and it will not benefit the business in the long run. Only in case of some companies, the reserve creation is done. And it is done inadequately, in different names, such as Redemption Reserve Fund, Capital Redemption Fund, Sinking Fund, and Reserve for Premium on Debenture Redemption etc. We will show all the funds, where ever is available, as Redemption Fund. For other companies no such figure is available.

For bonds issued at a heavy discount with nominal or zero interest (Deep Discount Bonds) the Bond A/c is credited with the actual amount received and the amount of discount is treated as the interest factor of the Bond. It becomes due along with the received amount on maturity as repayment is done on the basis of the face value. The entire amount of discount is likely to be uniformly divided or apportioned throughout the life period of these bonds. Each part of the apportioned discount is debited to the Profit and Loss A/c and credited (capitalised) to that Bond A/c in each year. This treatment has two effects. Firstly, it increases the amount of 'Debt' and secondly, profit is reduced to that extent to which the 'Debt' is increased. So, to incorporate this phenomenon in the 'EOR' of'Debt', we will adjust the figures of interest and 'Debt'. The capitalised amount of discount or the interest factor will be added together. Simultaneously, the same amount will be subtracted from the 'Debt' (as on the closing Balance Sheet) as it becomes due at the end of the period and it is not used to earn profit throughout the period.

Written off deferred revenue (Debenture etc issue) expenditure is shown as 'Exp W.O.' and it excludes all the items in it other than those related to debts, such as discount on issue, premium on redemption, etc. This item is showed separately from 'Interest' and added with it while calculating I for the purpose of finding out EOR. As because Bonds issued at a nominal discount the amount of discount allowed is capitalised as issue expenses of Debentures, Bonds, etc under the group 'Fictitious Assets' and it is written off against before tax profit on a regular basis throughout a long period. This treatment has the same effect upon profit as that of the interest payment (i.e. Profit & Loss A/c is debited).

All the accrued and capitalised interests are included in 'interest' and 'Debt' are shown as net of the capitalised interests. Being an exceptional case, interest free loans are also excluded from 'Debt'.

The figure of tax is found out by considering the items like 'Provisions for tax', 'Advance payment of tax', 'Rates and Taxes' and 'Direct Taxes Paid' and also consulting the existing 'Corporate Tax Rate' for the year. The adjustment for the difference between depreciation charged as per accounting policies and depreciation allowable as per 'Income Tax Act' is also considered here. All these had to be done because in no case the figure of provision for tax as shown in the Profit & Loss A/c is acceptable and adequate as per the existing tax rate for that year.

The 'PBT' in the Profit &Loss A/c, only includes the 'Provision For Tax' as shown in the Profit & Loss A/c as the 'Tax' while it excludes or is net of all other payments and adjustments for the tax purpose. So we will take 'PBT' as (PBT) - (Excess depreciation allowed by I.T.Act over accounting policies) - (profit on revaluation of assets) - (Provisions for tax as shown in the Profit & Loss A/c) + (Actual figure of tax charged). The adjustment for the revaluation for assets and excess depreciation became essential, because the normal practice of the companies is to use such adjustments to inflate their profit.

Note 4

Increase in profit

= (Increase in EBIT i.e. Decrease in outflow/Existing EBIT) x 100

= [(existing outflow x 18%) / Existing EBIT] x 100

= [{(21304 x 18)/100}/26848] x 100

= 14.28308%

Redefining Competitive Edge through Internalization of Ecological Footprints – Jute Fibre versus Synthetic Fibre

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Abstract

The set of principles, observations and experiences that constitute the way we look into reality have been changed and redefined. Novel changes have been made in the ambience of trade and commerce. Consequently, competitive edge is required to be recalculated on the basis of newly acquired knowledge nay, wisdom of ecological footprints. In this connection, competitive edge of jute fibre is a point worth discussing. Jute fibre has got a certain degree of ecological acceptability over synthetic fibre. However, due to market failure, synthetic fibres win the race as they enjoy the freedom to generate negative externalities (specially the environmental costs). Market failure is a situation where prices fail to capture 'external' costs and benefits to third parties. Therefore, the price advantage, which has enabled synthetic fibre to displace jute so unceremoniously in world markets, is due to the failure of market prices to internalize ecological costs. The so-called competitive edge of synthetic fibre will be significantly diluted to the extent that it may lose the edge entirely (once the externalities are included in the product pricing). Thus, redefining competitive edge involves creation of a level playing field for comparison through internalization of these externalities. The effort would benefit not only the global ecology, but also some of the world's poorest people (i.e. the jute growers and agricultural labourers of underdeveloped and developing countries). This paper focuses upon exploratory valuations for ecological costs and discusses how internalization of these costs will affect the relative competitive edge of jute and synthetic fibre.

Key-words: Natural Fibre; Synthetic Fibre; Jute Fibre; Polypropylene(PP); Economic Process Re-Engineering (EPR); Ecological Footprint; Paradigm Lost, Economic-System-Crisis; Biological Efficiency; Life Cycle Analysis(LCA).

1. Introduction

We may not be interested in globalization but globalization is interested about us. It is the *Economic Process Re-engineering* (EPR) to propagate a new economic order, predominantly characterized by the wave of information technology. Profound socio-economic transformation is involved in the age of information society. The intensity, and propensity of these transformations are yet to be captured by the sociological imagination. Obviously,

globalization is not merely an economic phenomenon; rather it pervades the entire field of human activities including politics, culture and ecology. The set of principles, observations and experiences that constitute the way we look into reality have been changed and redefined. Novel changes have been made in the ambience of trade and commerce. Consequently, competitive edge is required to be recalculated on the basis of newly acquired knowledge nay, wisdom of ecological footprints. Thus, there has been a paradigm shift in analyzing economic metamorphoses occurring across the world. In fact, we are heading from 'paradigm shift' towards 'paradigm lost', where there is no model at all to fall back upon for resolving economic-system-crisis. In this connection, competitive edge of jute fibre is a point worth discussing.

The promotion of synthetic fibre other than natural cotton and synthetic cellulose has become imperative due to the expanding world population and the limited natural resources available. It is assumed that the demand for fibres for clothing alone will rise from the current 60 million tons up to 130 million ton per year in the year 2050 (Koziowski, 1996), without taking into consideration the fibre consumption for various other purposes. Although, the invention of synthetic fibres has brought us uncountable benefits in our everyday life, but the increasing concerns over the global warming resulting from the ecological footprints caused by synthetics, in both developing and industrialized countries have started to change our attitude. Consequently, jute (a natural fibre that can be used in supplementing and/or replacing synthetics) has been receiving increasing attention from the industry. Competitive edge originates from core competencies. Core competencies stem from the possession of valuable and unique features that are difficult to imitate or substitute. In this connection, the unique features of jute fibre are:

1. Jute fibre is superior to synthetic fibre in physical and chemical characteristics.
2. Jute is an annually renewable energy source with a high biomass production per unit land area.
3. Jute is biodegradable and its products can be easily disposed of without causing ecological hazards.
4. Jute improves soil fertility and increases the productivity of other crops while used in rotation with other crops
5. The use of jute in the paper industry and as a geotextile will partially prevents deforestation and soil erosion.

2. Ecological Acceptability

From the foregoing discussion it is evident that jute fibre has got a certain degree of ecological acceptability over synthetic fibre. Let us see the specific points of intersection where jute fibre outperforms synthetic fibre.

- ***Reduction in Carbon Footprint***: Jute is a fast growing field crop with high carbon dioxide assimilation rate. Jute plants arrest the global warming through assimilation of large quantities of CO_2 and simultaneously reduce the global warming through generation of large quantities of O_2. Theoretically one hector of jute plants can consume about 15 tons of CO_2 from atmosphere and release about 11 tons of Oxygen in the 100 days of the jute-growing season. Studies also show that the CO_2 assimilation rate of jute plant is several times higher than that of trees (Inagaki, 2000).

- ***Sustainable Agricultural Practice***: Jute cultivation requires a very modest amount of fertilizers and pesticides. By default it produces 5-10 tons of dry matter per acre of land which is metamorphosed into the soil to enrich it organically. While operating crop rotation in conjunction with rice and potatoes, jute acts as a barrier to pest and diseases for other products and also provides a substantial amount of nutrients to them.

- ***Generation of High Biological Efficiency***: Jute is a fast-growing crop having low pay back period. The average dry stem production of jute ranges from 20-40 tons per hector annually in a period of 4-5 months. Whereas, the fastest growing wood plant need at least 10-15 years to produce only 8-12 tons per hector annually. Due to the biological efficiency, the use of jute (as an alternative of wood) to produce paper pulp will substantially lower the cost of production.

- ***Ecological Adaptability***: There is no denying the fact that food crops outperform jute fibre so far as economic return is concerned. Consequently, cultivable land is being encroached aggressively for food crops and jute fibre is being sidelined or migrated to semi-barren lands. In fact some countries are exploring the possibility of growing jute on lands with stress conditions e.g. draught, salt, flooding, low pH etc. The effort has proved to be feasible. Since jute fibre has a good tolerance to salinity, water stress and water logging, it can adapt easily to climate and soils.

3. Ecological Assessment Of Jute Fibre Production

The agricultural practices used for crop production is bound to affect the ecology through the creation of ecological footprints (i.e. the way of using the surface area, emission of gases including carbon footprints and releasing of solid and liquid wastes) and jute is no exception to that rule. The crucial question is that how far the eco-friendly jute affects the ecology in a lesser degree in comparison with the synthetic fibre. The situation is all the more interesting because both fibres are used for the same industrial purpose. We are supposed to search the answer in the Life Cycle Analysis (LCA) as it is a very effective tool for assessing the ecological footprints of a product or process. LCA of jute fibre production involves two stages, namely LCA of jute agriculture and LCA of jute processing.

❑ *LCA Of Jute Agriculture*

Jute agriculture involves the following operations:

i. Sowing
ii. Weeding / thinning
iii. Harvesting
iv. Defolination
v. Retting
vi. Fibre extraction
vii. Washing and drying

As mentioned earlier, jute cultivation requires a very modest amount of fertilizers and pesticides. At the same time only a small percentage of the farmers use seed treatment, fertilizers and herbicides/pesticides, which make the processes ecologically sound. Processes of jute retting, fibre extraction and washing have drawn some concerns regarding solid residue and gaseous emissions that arise from such processes. Complaints about unpleasant smell of gaseous emissions caused during retting are quite common. However, the water pollution by retting is transitory in nature, because in a warm climate the polluted water returns to its normal condition after 1-2 months. There are studies showing that retting water can be used as fertilizer in the growing of rice. Further, the 'humidified retting', a new retting method developed in China, can significantly reduce water pollution, the use of water and the generation of methane. Similarly, the gaseous emissions and unpleasant smell do not involve any health hazard as such. Moreover, the gaseous emissions from retting can be used as a source of energy, i.e. biogas.

LCA of Jute Processing

Jute processing involves the following operations:

i. Batching
ii. Softening with batching oil
iii. Carding
iv. Drawing
v. Spinning
vi. Weaving
vii. Finishing

The processing of jute has raised certain ecological concerns. For example, the use of mineral batching oils, chemicals and pigments during bleaching and dying. However, replacing mineral oil with vegetable oil or RBO can solve these problems. Gaseous emissions including carbon footprints occur in the course of composting/disposal of jute in landfills. These problems cannot be ignored. However these type of problems exist in any comparable industry. As per the study of The International Jute Organization (1992) 'the life cycle of jute products can be classified as less environmentally damaging than that of polypropylene' due to the following reasons:

- The production of 1 ton of jute products consumes only 7% of the energy required for the production of 1 ton of polypropylene.
- The production of 1 ton of jute generates 80% less wastes than the production of 1 ton of polypropylene. Moreover, wastes from jute are biodegradable and can always be used as manure.
- Jute production does require more water, but jute wastewater is biodegradable and does not contain any heavy metal like in polypropylene wastewater.
- The production of 1 ton of polypropylene generates 3.7 ton of CO_2(very big carbon footprint). Whereas, jute generates no CO_2 rather it absorbs CO_2 from the air.

4. Natural Fibres versus Synthetic Substitutes: A Case Study

Since Second World War, renewable natural raw materials including cotton, jute, wool, rubber etc. have lost international markets to synthetic substitutes. While the production and consumption of natural raw materials are by no means free from negative ecological impacts, the ecological cost associated with the production and consumption of synthetics is

inherently larger. An interesting feature is that the production of many natural raw materials is concentrated in the developing countries, while the production of synthetic substitutes is flourished in the industrialized countries. Thus the competition between the natural raw materials and synthetics is actually metamorphosed into war of clean producers against the dirty producers. The dirty producers win the race as they enjoy the freedom to generate negative externalities (specially the environmental costs) without being accountable for it. The competition between jute (natural fibre) and polypropylene (synthetic substitutes) is a point worth discussing.

❑ Market Failure

With the globalization of markets, however comes the globalization of market failures. Market failure is a situation where prices do not capture 'external' costs and benefits to third parties. In the absence of corrective policies, the market blindly rewards productivity as measured by price. Consequently, in an environment of competitive pricing jute is being displaced by polypropylene (PP) as higher pollution costs associated with the latter are not being internalized in product pricing. Let us illustrate the matter further. Suppose, a developed country X produces PP more cheaply than jute fibre and thereby enjoying competitive edge over the jute fibre producing country Y, but in so doing country X generates more pollution. Due to the market failure (i.e. while ascertaining product pricing, the pollution costs are not internalized and consequently the market fails to reflect the pollution costs in the product pricing), trade liberalization will cause the potential orders for fibre to shift mostly to country X (with a corresponding increase in pollution and its negative externalities). Moreover, the positive externalities so far used to generate in country Y (e.g. purification of air through CO_2 assimilation, the conservation of crop genetic diversity etc.) will be ceased to generate. But the so-called competitive edge of country X (in the production of PP) will be significantly diluted to the extent that it may lose the edge entirely(once the external costs and benefits are included in the product pricing). Thus, redefining competitive edge involves creation of a level playing field for comparison through internalization of externalities (specially ecological costs).

❑ Jute versus Polypropylene

Jute is the second most important natural fibre in world trade after cotton. It has two main end-uses: burlap (also known as Hessian) cloth, and carpet backing. In recent decades, jute consumption in the industrialized countries has contracted sharply in the face of competition from synthetics. Between 1970 and 1992 the annual jute imports of North

America and Western Europe plummeted from 1.0 million to 52000 metric tons (Thigpen, 1987; IJO, 1993). Over the same period the real price of jute declined roughly 70%. The decline of the international jute market has hit the incomes of some of the world's poorest people. For example, Bangladesh accounts for roughly 80% of world jute exports (FAO, 1994). With a per capita income of S 220/year, Bangladesh ranks among the poorest countries in the world. As per (World Bank, 1992) jute related activities in agriculture, manufacturing and trade affect the livelihoods about 5 million people.

PP, the main synthetic substitute for jute, is manufactured primarily in the United States and Japan, although newly industrialized countries including Korea, China and Brazil have now entered the industry. Polypropylene producers include multinational firms such as Exxon, Hoechst, Hyundai Petrochemical and Shell (Johnson, 1990). The competitive edge in

product pricing which permits PP to capture and retain the erstwhile markets for jute has been fairly modest. In 1990 the wholesale price ratio of jute to synthetic cloth in New York was 1.35, whereas the average over the preceding decade was 1.42 (World Bank, 1992). The interesting fact is that the incorporation of environmental costs into the prices of PP and jute could substantially alter the ratio.

❑ Externalities of Polypropylene

The ecological impacts of PP manufacture are from air pollution and energy consumption. Air pollutants generated in PP production include particulates, sulfur oxides, nitrogen oxides, carbon monoxide and volatile organic compounds; total emission of which are estimated at 127 kg per ton of PP (Tellus Institute, 1992). In addition, PP production emits smaller amounts of other toxic air pollutants, including ammonia, benzene, biphenyl, ethyl benzene, lead, methane, and toluene.

Energy use in the production of PP cloth is estimated at 84 gigajoules /ton, at least six times the energy requirement for production of jute cloth (Braungart *et al*, 1992). Carbon dioxide (CO_2) emissions in the PP production process are estimated at 3.7 ton per ton of fibre. The long-term ecological effects of additions to atmospheric CO_2 derived from fossil carbon remain uncertain, but they include impacts on agriculture, forestry, biodiversity and a rise in the sea level. PP is not biodegradable. Its recycling potential is limited by the use of additives in the production process and by mixture with other plastics in the collection process. At the end of the product life cycle, PP disposal therefore incurs the costs of landfill storage, incineration, or litter. As much as six percent of PP cloth, by weight, is comprised of

chemical additives, including stabilizers, coloring pigments, and flame-retardants. These contain heavy metals including chromium, copper, lead, nickel and zinc, which also ultimately enter the waste system.

◻ Externalities of Jute

Ecological impacts of jute production are relatively modest by comparison. Jute growers use some chemical fertilizer, but not very intensively. Most apply no pesticides at all to the crop and it is an important environmental plus. The flooded fields in which jute ripens support diverse fish populations. Like all plants, jute absorbs CO_2 (the most important constituent of the green house gases responsible for global warming) from the atmosphere when it grows and returns it when it decays. Jute thus provides a temporary ecological benefit. The transport and milling of the fibre, the production and transport of inputs for the crop generate some CO_2 emissions, but these are less than one sixth of those generated in PP production.

The most serious negative ecological impact of jute production probably arise in the process known as retting. Retting is a process when the jute stalks are submerged for 3-4 weeks in ponds where anaerobic microbial decomposition loosens the fibre in the inner bark. Retting causes transitory deterioration in water quality, including oxygen depletion, which can harm gill-breathing fishes. The decomposition products are non-toxic, however, and these enhance soil fertility. Retting releases methane, a potent greenhouse gas, in quantities, which have yet to be measured. Efforts are being made to capture the methane for use as biogas fuel.

The ecological impacts in the manufacturing stage of jute production arise primarily from energy consumption, the production of fibre wastes and pollution from dyes. Energy use in jute production is estimated at up to 14 gigajoules/ton. Jute dust waste produced during processing amounts to roughly two percent of the fibre; some of this are burnt for energy. Only a small fraction of jute fabrics (around 1-2 percent) is dyed, but effluent samples from jute dyeing processes show releases of heavy metals.

Jute is biodegradable. At the end of the product life cycle it decomposes in the soil. Residues from mineral oils used to soften the fibre may persist but use of vegetable oils or RBO for this purpose would ensure residue-less biodegradation. Moreover, the edible leaves of the plant provide a cheap (or even free) source of food for the poor and the jute stalks(left after the fibre is stripped away) are a renewable source of cooking fuel and building material. The high labour intensity of jute cultivation can also be regarded as a social benefit in a land where agricultural labourers are among the poorest of the world's poor.

◻ Correction of Market Failure through Internalization of Environmental Costs on Relative Price of Jute and Polypropylene

To date there have been no comprehensive attempts to evaluate the full range of ecological impacts of jute and PP in economic terms. Boyce (1995), however, had performed exploratory valuations for three major impacts: air pollution, carbon dioxide emissions and solid waste disposal. Table-1 summarizes the results, showing how internalization of these costs would affect the relative price of jute and PP.

Table 1: Internalization of Environmental Costs on Relative Price of Jute and Polypropylene

	Prices (S/000 yd)		Price Ratio
	Jute	PP	Jute/PP
Market Price(1990)	240	178	1.35
Internalizing Air Pollution Costs Only	240÷0 = 240	178+46 = 224	1.07
Internalizing CO_2 Costs Only	240÷2 = 242	178÷4 = 182	1.33
Internalizing Non-biodegradable Disposal Costs Only	240÷0 = 240	178÷2 = 180	1.33
Internalizing All the Above	240÷0÷2÷0 = 242	178÷46÷4÷2 = 230	1.05

Boyce has considered only the high volume pollutants (suspended particulate matters, sulfur oxides, nitrogen oxides, carbon monoxide and volatile organics) and not the other toxic air pollutants released in smaller quantities in PP production. The monetary values used to translate these emissions into costs are derived from the average values adopted by the policy-making agencies in the United States as a whole. Obviously these are considerably below than those used in densely populated and highly polluted regions. Carbon dioxide emissions are here valued at S50 per ton of carbon.

In order to make the study comprehensive we need to internalize the other ecological costs i.e. retting on water quality, refinery pollution attributed to PP, Sulfur Dioxide emissions, Nitrogen oxide emissions, impact of methane emissions during jute retting, impact of heavy metals and other chemical additives used in the manufacturing processes of PP and jute, impact of other toxic air pollutants emitted in PP production and the costs associated with emissions of toxic pollutants due to the use of chemical additives during PP production.

Moreover, it seems that Carbon Dioxide emissions has been valued at lower price of S50 per ton of carbon considering the fact that Nordhaus (1991) suggested a price of S66 per ton and also corroborated by the fact that these are considerably below than those used in densely populated and highly polluted regions). The internalization of these costs (so far as

internalization of costs are possible) would further lower the Jute/PP price ratio as shown in Table 2 below:

Table 2: Internalization of Environmental Costs in the Indian Perspective

	Prices (Rs./Ton)		Price Ratio
	Jute	PP	Jute/PP
Average Market Price(2000)	101130.4	85714.3	1.18
Internalizing suspended particulates Costs Only	101130.4÷0 = 101130.4	85714.3÷968 = 86682.3	1017
Internalizing CO_2Emission Costs Only	101130.4÷0 = 101130.4	85714.3÷10745 =96459.3	1.05
Internalizing SO_2Emission Costs Only	101130.4÷0 = 101130.4	85714.3÷1089 = 86803.3	1.17
Internalizing NO_2Emission Costs Only	101130.4÷0 = 101130.4	85714.3+11858 = 97572.3	1.04
Internalizing Non-biodegradable Disposal Costs Only	101130.4÷0 = 101130.4	85714.3÷2424 = 88138.3	1.15
Internalizing Attributed Refinery Pollution Costs Only	101130.4÷0 = 101130.4	85714.3÷454.5 = 86168.8	1.17
Internalizing Retting on Water Quality Costs Only	101130.4+724 = 101854.4	85714.3	1.18
Internalizing All the Above Costs	101130.4÷0÷0÷0÷0÷0÷0 ÷724 = 101854.4	85714.3÷968÷10745÷108 9÷11858÷2424÷454.5 = 113252.8	0.90

Note:

1. **In the tabular study(Table 1) of Boyce the unit of measurement of jute fibres were Yard(S/000yd) and we are going to use the measurement unit in Ton(Rs./Ton) in Indian perspectives.**
2.

	Jute	PP
Weight (gm/m^2)	230-750	70-140
Assumed Average Weight (gm) per Sack	230	70
Market Price (2000) per Sack	Rs. 23.26	Rs. 6.00
Average Market Price (2000) (Rs./Ton)	10130.4	85714.3

3. **Emission of Suspended Particulate Matter 5 Kg/Ton PP @ Rs. 193.60/Kg of emission**
4. **Emission of CO_2 3.7 Ton/Ton PP @ Rs. 10745/Ton of emission**
5. **Emission of SO_2 15 Kg/Ton PP @ Rs. 1089/Ton of emission**
6. **Emission of NO_2 35 Kg/Ton PP @ Rs. 11858/Ton of emission**
7. **Emission of non-biodegradable disposal costs, attributed refinery pollution costs and retting on water quality costs have been valued as per 'study conducted by Indian Institute of Technology, Kharagpur'**

5. Conclusion

The price advantage, which has enabled PP to displace jute so unceremoniously in world markets, is due to the failure of market prices to internalize ecological costs. Points may be raised that the basic polymerization process and product modification technologies for PP offer polymer scientists an opportunity to produce a plastic for any specific application combining the physical, chemical and thermal properties unique to that application. But such arguments are not tenable as the product modification technologies are also available for jute fibres through a number of institutions (Exhibit – I). Moreover, a comparison of properties

and characteristics of jute and PP sacks provides a lot of points in favour of jute (Exhibit – II).

Ultimately the correction of this market failure would benefit not only the global ecology, but also some of the world's poorest people (i.e. the jute growers and agricultural labourers of underdeveloped and developing countries). On the other hand the absence of corrective prices benefits some of the world's multinational corporations not only at the cost of the livelihood of the poorest people but also at the cost of the serious irrecoverable ecological damage.

This article has performed exploratory valuations for ecological costs and empirically showed how internalization of these costs will affect the relative competitive edge of jute and PP (synthetic fibre). As it is an exploratory study, caution must be exercised in generalizing the result. However, it is hoped that this study reflecting the externalities in the market prices is valuable because it will certainly disturb the comfort level enjoyed by PP. It is, in essence, going to extend the literature in the matter of commercial viability of jute fibre over synthetic fibre.

Exhibit – I

1. Ahmedabad Textile Industries Research Association
2. Bureau Of Indian Standards
3. Bombay Textile Research Association
4. Central Research Institute For Jute
5. Directorate For Jute Development
6. Export Inspection Council
7. Indian Institute Of Packaging
8. Indian Jute Industries Research Association
9. Indian Jute Mills Association
10. Institute Of Jute Technology
11. Jute Corporation Of India
12. Jute Manufacturers Development Council
13. National Institute Of Research On Jute And Allied Fibre Technology
14. National Centre For Jute Diversification
15. National Institute Of Fashion Technology
16. Northern Indian Textile Research Association
17. National Jute Manufacturers Corporation
18. Office Of The Jute Commissioner
19. State Trading Corporation Of India

Exhibit – II

PROPERTY & CHARACTERISTICS	JUTE SACKS	PP SACKS
Biodegradability	Very Good	Nil
Capacity Utilization	Excellent	Poor
End Use Performance	Good	Poor
Grain Preservation Efficiency	Excellent	Poor
Heat Resistance	High	Low
Number Of Reuse	8-15	3-4
Operational Convenience	Good	Poor
Repairability	Very High	Very Low
Resistance To Hooking	Fair	Poor
Seam Strength	Strong	Poor
Stack Stability	Excellent	Poor
Surface Texture	Rough	Poor
Type Of Handling Tolerance	Rough	Delicate

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Off-Balance Sheet Financing and the Sanctity of Corporate Financial Reporting

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Abstract

Off-balance sheet accounting is an aspect of creative accounting. The present paper, in this context, addresses the following issues:

- Exploration of the reasons why companies are induced to keep finance off their balance sheets.
- Examination of the distorting effects of off balance sheet financing.
- Examination of the various financial schemes that are currently being used to conceal debts from the balance sheet.
- Evaluation of the approaches the leading acquainting standard-setting bodies of the world have adopted to crack down on the problems of off balance sheet financing.
- Identification of the areas where regulatory gaps still exist.
- Suggesting measures for closing the regulatory gaps.

Key-Words : Off-Balance Sheet Financing; Debt; Accounting Standards; Disclosure.

1. Introduction and Background

In recent years, there has been a proliferation of financial arrangements that have enabled companies to raise finance without increasing their apparent indebtedness on their balance sheets. The practice of using finance without the involvement of the balance sheet is known as *off-balance sheet financing.* In fact, off balance sheet financing is a descriptive phrase for all the financial arrangements that result in the exclusion of debts and associated assets from the balance sheet. The Institute of Chartered Accountants of England and Wales (ICAEW) has defined off balance sheet financing as "the funding or refinancing a company's operations in such a way that, under legal and existing accounting conventions, some or all of the financing may not be shown on its balance sheet" (ICAEW, 1985).

Off-balance sheet financing is an aspect of creative accounting. Companies have the habit of being creative in the generation of financial reporting numbers; they innovate financial reporting numbers by taking advantage of the flexibility and loopholes in accounting rules

and regulatory requirements. Keeping finance off the balance sheet is one of the ways creativity is cultivated in corporate financial reporting. There is a significant difference between off balance sheet financing and other forms of creative accounting. In off balance sheet financing figures are completely left out, while in other forms of creative accounting efforts are made to manipulate figures. The transforming of a debt into an off balance sheet item requires either a reduction in one or more of the existing assets or an exclusion of one or more of the newly created assets. This balancing activity needs to be performed in order to preserve the identity of the balance sheet.

Companies are motivated to keep debts off the balance sheet for a variety of reasons. A common reason for off-balance sheet financing is to obtain funding which the company would not have otherwise been able to achieve. Off-balance sheet financing reduces the exposure to debts. If liabilities are not reported on the balance sheet, it makes the statement more attractive and stronger-looking. But, the removal of debts from the balance sheet does not absolve the company of the burden of servicing and repaying those debts. An off-balance sheet debt, like any other kind of borrowing, has to be serviced and repaid eventually.

Debt acts as a source of external capital for business. Companies use debt for several reasons. The most important advantage of debt is that it has flexibility. Companies can structure the duration and repayment of the debts to suit their requirements. Debt interest is tax deductible and debt financing gives rise to gearing advantage. There is, however, a negative aspect of the use of debt as a source of finance. Debt financing increases the company's financial risk. Companies with high gearing have an incentive to conceal the extent of their indebtedness by procuring finance and not reporting as such on the balance sheet.
In most cases, off-balance sheet financing involves the raising of cash. Generally, companies raise cash in one or more of the following ways:

- Issuance of equity
- Borrowing
- Selling of assets

A company may seek to hide its borrowing by portraying it as an issue of equity (i.e., debt structured as equity). Selling assets with recourse is another way a company can conceal its debts. Another very subtle technique of keeping debts off the balance sheet is to create non-consolidated subsidiaries. In many countries, companies set up subsidiaries, which they effectively control, but whose share capital is so arranged that they would not be considered subsidiaries under the existing legal statutory requirements. Various techniques are adopted to accomplish this.

The exclusion of liabilities from the balance sheet is against the principle of truthful financial reporting. It undermines the credibility of corporate financial statements. If liabilities are kept off the balance sheet, the users of financial reports cannot appreciate the commercial effects of the transactions entered into by the company. The exclusion of liabilities undermines the use of the balance sheet as a vehicle for assessing risk by means of the gearing ratio. Off-balance sheet financing has the potential of jeopardizing the interests not only of the users of the financial statements but also of the companies that practice it. An excessive use of off-balance sheet financing devices may even lead to the downfall of the company that practices it. There are numerous examples of corporate failures that have been caused due mainly to the adoption of various dubious accounting practice of keeping debts off the balance sheet. The most recent example is Enron. Preliminary investigations into the collapse of this seventh largest US company reveal that the use of several off balance sheet vehicles has been a major contributing factor for its ultimate downfall.

Off-balance sheet financing has become a source of great headache for the accounting regulators the world over. They are struggling hard to crack down on the unhealthy practice; several measures have already been adopted. The definition of liability has been tightened and definitive rules have also been promulgated to outlaw some specific off balance sheet financing schemes. But problems persist. The issues raised by off balance sheet financing are perhaps the most troublesome and most complex issues accounting regulatory agencies have ever addressed. The problems being caused about by off-balance sheet financing are different in many significant respects from other accounting problems. At the time an accounting regulatory agency addresses an accounting issue; its objective normally is either to add something new to accounts or to modify the treatment of an item that is already there. But, in off-balance sheet financing, the objective of rule-making becomes to stop an item being taken away from the balance sheet.

2. Objectives and Scope of The Study

The specific objectives of the study include:

- Exploration of the reasons why companies are induced to keep finance off their
  balance sheets.
- Examination of the distorting effects of off balance sheet financing.
- Examination of the various financial schemes that are currently being used to conceal debts from the balance sheet.
- Evaluation of the approaches the leading acquainting standard-setting bodies of

the world have adopted to crack down on the problems of off balance sheet financing.

- Identification of the areas where regulatory gaps still exist.
- Suggesting measures for closing the regulatory gaps.

The study aims at bringing new knowledge to the attention of accounting policy makers and at affording others interested in corporate financial reporting a better insight into the current and emerging problems facing the accounting profession.

The study, it is believed, will help policy makers to adopt policies leading to the restoration of the damage done to the sanctity of corporation financial reporting by the explosive growth off-balance sheet financial arrangements.

The sanctity of corporate financial reporting may be disturbed due not only to reasons connected with off balance sheet financing but also to factors associated with other aspects of creative accounting. But, the present study does not deal with those other aspects of creative accounting. It is concerned exclusively with off-balance sheet financing.

Off balance sheet financing is not any country-specific problem. The problem persists in almost all parts of the world. Its presence is felt particularly in those countries where companies depend on the capital market to raise their finance. This is why the study has elected to adopt a general perspective. It explores themes and illustrates phenomena by taking examples from various parts of the world. Special emphasis is, however, laid on an understanding of the Indian scenarios.

3. Data Source and Methodology

The study is basically descriptive in nature; it describes the phenomena, as they exist. In some cases endeavour is also made to go beyond merely describing the phenomena to analyzing and exploring why and how events and phenomena are occurring. In this study, no endeavour is made to test or confirm any hypothesis. The study emphasizes on gaining insights and familiarity with the different aspects of the issues being researched.

The study has been conducted based on a qualitative approach. A major part of the data collected and used in conducting the study is qualitative in nature. Qualitative approach is bound to be to some extent subjective. An endeavour has, however, been made to overcome the deficiency of the qualitative data by supplementing them, in appropriate cases, with quantitative data.

The study also uses analytical techniques to deal with conceptual issues. The key conceptual issue involved in the study relates to the determination of how liabilities should be defined, recognized and measured. There are many controversial issues in accounting for liabilities. These issues are explored in greater depth using analytical techniques.

The study has been conducted based on data collected from various sources. They include:

- Books and journal articles
- Seminar/Conference papers (both published and unpublished)
- Study reports
- Published financial statements
- Accounting standards and other official pronouncements of accounting regulatory agencies
- Personal interviews
- News papers and magazines
- Internet

Much of the information used in the study has been gathered in the course of carrying out interviews with accounting practitioners, finance specialists, accounting academicians, accounts preparers, professional financial analysts and bankers. Since the level of understanding of the different categories persons interviewed is different, it became necessary to depend on an unstructured and semi-structured qualitative interview.

4. Literature Survey

There exists a large volume of literature on the subject of creative accounting. Since off-balance sheet financing is an aspect of creative accounting, it has a fair share in that literature. But much of this literature is patchy and anecdotal rather than analytical. Ian Griffith's epoch-making book, *Creative Accounting* represents one of the first major attempts to provide an insight into the manipulative aspects of corporate financial reporting. It provides a detailed analysis of how companies massage the financial numbers they put on the financial statements. The book focuses on British scenarios. Soon after the publication of Griffith's book (Griffiths, 1986), several other accounting writers started taking interest in the subject and a good number of books and articles were published. The most remarkable among them include Shevlin (1987), Hagigi et. el. (1987), Jameson (1988), Peasnell et al. (1988), Peasnell and Yaansah (1988), Ronen et al. (1990), Kohak and Patil (1992) and Naser (1993). Ron Paterson's book (Paterson, 1993) *Off-balance Sheet Finance* is possibly the most comprehensive treatise to deal exclusively with off-balance sheet financing. In this book,

Paterson examines the various financial arrangements that have been developed over the years for enabling companies to procure finance without the involvement of the balance sheet. The book is designed to offer some insight into the thought process of those seeking to regulate the devious practices of taking things off the balance sheet.

In India, no systematic study on this vital subject has yet been conducted. The few articles that have been brought out on the subject in India (e.g., Basu, 1996, 1998) are speculative in nature and they do not offer any systematic evidence as to the practice of off-balance sheet financing in this country. The present study is a humble attempt to fill up the gap.

5. Major Research Findings

Off balance sheet financing is a complex and contentious issue. It has troubled accounting standard setters and other accounting regulatory agencies for a long time. They have promoted several measures to regulate off balance sheet financial arrangements but problems persist. The major findings of the work are as follows:

- The size and complexity of the financial arrangements that are used to avoid reporting debt on the balance sheet has increased over the years.
- Accounting regulatory agencies are trying to cope with the situation but problems persist.
- Off-balance sheet financing is an ever-changing scenario; as one requirement is brought in to better reflect the obligation from a certain transaction on the balance sheet; more sophisticated means are soon devised to take its place.
- The approaches accounting regulatory agencies have adopted to increase the visibility of debts on the balance sheet differ from one jurisdiction to another; some have preferred detailed rule-making, while others have favoured a conceptual approach.
- In India, the problem of off balance sheet financing has not reached serious proportions, but the scenario is changing very rapidly. More and more, Indian companies are being lured into adopting various subtle devices to avoid reporting debts on their balance sheets. Leasing— the oldest form off balance sheet financing started quite long back. Among other schemes— hire purchase, debt factoring, securitization; special purpose vehicles (in the form of captive finance companies) are becoming popular and growing in terms of sizes day by day. If not controlled, it seems, in the near future, it would become a serious problem by which common investors would get affected. As a result, the capital market and money market in the country will lose its importance, and not be able to function effectively in mobilizing

the finances and making it available for proper investment proposal in right time. As a result, total economy will face a slum or slow-paced situation.

Conclusion

Keeping debts off the balance sheet is a nefarious practice. It has the potential of destroying the usefulness of corporate financial reporting. But the issue is such a complex one that there is no easy answer to it. The problem of off balance sheet financing cannot be tackled in isolation. Reforms should be contemplated in different directions.

The issue has first to be addressed at the conceptual level. These should be a clear specification as to what should be on the balance sheet. The definition of "liabilities" should be tightened further and the gap that currently exists between the definition of a liability and its recognition in accounts should be narrowed down. Definitive accounting standards may be necessary to deal with certain specific off balance sheet transactions but those standards should focus more on principles than on rules. Among other suggestions, the following may also be noted:

- Betterment of existing accounting standards and introduction of relevant standards,
- Existence of principles and specific rules based standards,
- Management should be more ethical, and maintain integrity,

- Auditors should be more independent and their responsibility is to be enhanced,
- Auditors' appointment should be justified by government,
- Rotation in auditor's appointment should be made,
- Auditor should maintain integrity in discharging duties,
- Disclosure of financial reporting should be made effective and relevant,
- Users of accounting statements should be more alert about their rights,
- Certification of credit rating by credit rating agencies may be made compulsory and
- Companies should be protected from the loss of public faith.

Lastly, it may be suggested that since off-balance sheet financing is a common accounting problem facing many countries, there should be a concerted effort to eradicate it.

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Public Investment and Infrastructural Finance: The Case of the Indian Railways Revisited

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Abstract

Provisioning of infrastructure through alternative modes of state finance, market finance or public-private partnership is an area of key interest within economics. Recent literature on this issue thus reflects the varying concerns of development institutions seeking to support economic growth and human development through increased international capital flows (DFID, 2000; UNDP, 2005; Agénor *et al*, 2006), of global financial markets seeking secure capital returns from FDI in the infrastructure of developing and transition economies (GDF, 2004; 2005; Ramamurti *et al*, 2005), as well of governments seeking to bridge large infrastructural gaps without resorting to fresh taxation or fiscal indiscipline (IIR, 2001; 2007). Several recent empirical studies have also re-examined the historical processes through which public provision of infrastructure had generated technological innovation with significant gains in factor productivity and regional comparative advantage (Munnell, 1992, Aschauer, 1993; Holtz-Eakin, 1993; Boarnet, 1995).

International capital flows and technology transfers to the building of railways in many parts of the world in the late 19th century offer a prior instance of alternative modes of financing the development of infrastructure, from which relevant lessons can still be drawn (Eichengreen, 1996). The reform and restructuring of railways in the modern age once again calls for large-scale capital movements that can propel technological renewal and the resulting economies in scope and scale. The paper examines current difficulties in mobilising railway capital in India in the wake of dwindling budgetary support from the state. Despite being the largest public undertaking in the country, the Indian Railways are seen to have suffered continuously from overregulation and undercapitalisation, which restricts their efficiency as an enterprise. Ultimately, the diseconomies stemming from many decades of state neglect are transmitted as cascading costs through the economy and reduce India's global competitiveness. In the face of growing divergence within the regional development process and the limitations of private capital and enterprise, rejuvenation of the railways in India urgently calls for the renewal of public investment support from the state. However, sweeping financial changes that allow Indian Railways to operate more autonomously will also have to be initiated for their full infrastructural potential to be realised.

Key-words: Regulated railway enterprise; Public capital; Colonial railway finance; Infrastructural finance; Public utility consideration.

Public Capital and Large-scale Railway Enterprise

The capitalisation of large-scale enterprises usually involves strategic decisions regarding the sources, scale and timing of investments as well as the purposes they will eventually to

serve. Even when the sources of capital are private, overriding social concerns usually guide the creation and regulation of large enterprises, especially those that visibly serve a public or tactical purpose. Since the large investment scale makes duplication of enterprise and investment inefficient, the long gestation before large investment projects begin to yield viable dividends limits the scope for trial and experimentation while realising investment plans. In practice, the activities of each large enterprise therefore comprise a series of coordinated investment decisions that must be carefully sequenced and dovetailed into each other. For executing such activities on a large scale, institution of a strong controlling authority also becomes necessary to ensure effective coordination within the enterprise, without investment spillovers and cost overruns.

In the case of large-scale railway enterprise which possesses all the above characteristics, a strong argument has therefore emerged for public coordination and control, at least during the initial phases when the infrastructural foundations are laid. This central proposition has usually been based on one or the other of the following arguments.

a) The *capital efficiency* argument notes that a major part of the initial infrastructural investment in the building of railway networks is either irrecoverable, or recoverable only at some future date when the scale of operations has grown to a level where credible operating profits begin to appear. Moreover, a large part of such capital costs need to be 'sunk' and ignored in future references to 'profit', leaving only incremental costs that are incurred in order to keep the service running open for profit considerations (Lansing, 1966:89). The duration of the period of low returns to capital is determined by the gestation lag between the building and full utilisation of infrastructural facilities. Even in the best of circumstances, the rate of returns remains low because the public good character of transportation makes it necessary to keep user-prices low so as to maximise the stream of social benefits flowing to all users.

b) The *natural monopolies* argument, when applied to railway infrastructure, notes the presence of technical indivisibilities in sunk and fixed capital costs, which generate increasing returns and decreasing unit costs as the scale of transportation services expands (Meade, 1952). Again, the optimum scale for infrastructure provision is too large to be handled efficiently by multiple enterprises which would find the market uncontestable, and therefore a natural monopoly is said to exist (Ivaldi *et al*, 2005). Thus an overriding consideration behind the public provision of railway transportation services is the existence of natural monopolies in such services, where a single service provider can market the

service at lower cost levels than multiple organisations.

c) The *social utility* argument advanced for public provision of utility services essentially seeks that these are provided at reasonable and regulated cost, instead of the costs of service being set at unreasonably high monopoly rent-seeking levels that market-based pricing would inevitably lead to in the case of monopolistic enterprise. The deep-rooted historical rationale behind public ownership of transportation infrastructure also derives from apprehensions that privatised provision would lead to suboptimal supply and inadequacy in services, both in terms of their density and spatial spread. The character of railway services as a public good to society and the lessons learnt about the inadequacies of private handling of this public utility have been studied in the context of US railways in Eichengreen [1995], and in Cain [1980]. Cain in extension, points to negative aspects of the 'public service' image that railways were increasingly forced to adopt, which ignored managerial and operative inefficiencies that the system might be suffering from.

d) The *externalities* argument refers essentially to the public good character of railway services that arises from the social objectives that transportation services seek to fulfil (Seabright, 2003:10). Canonical public goods, which in the terminology of public economics (Musgrave, 1959) are characterised by the externalities of *non-rivalry* and *non-excludability* among their users, can only really exist in market situations where their supply is considerably ahead of demand. Provision of transportation services on non-commercial terms also draws on conceptual definitions of merit goods, which satisfy "wants so meritorious that their satisfaction is provided for through the public budget" (Musgrave, 1959:13), although it may also be noted that the provision of merit goods does not *ipso facto* enjoin that they must be provided under public ownership..

e) The *costing* argument rests on the regional and social obligations carried by large railway undertakings that require the provision of certain services priced well below cost, or the continuance of specific services under conditions where they cannot break even because of the dearth of adequate traffic. Hence for railway operations to be financially viable on the whole, operational costs have to be distributed over the entire scale of the enterprise (Seabright, 2003:21), through the mechanism of cross-subsidisation and pricing principles which are further elucidated below.

Under natural monopoly conditions, a private monopolist would seek to earn a rent-seeking profit by equating the unit price of the service (MR) to its marginal cost (MC). If instead, in the case of infrastructural services, resort were made to Pareto-pricing at MC = AR = P*, the

service provider would sustain a loss because of average price realisations at levels lower than average cost of the service. The gap between average cost (AC) and average revenue (AR) would thus have to be made up by providing an equivalent state subsidy if continuation of the service was sought. The dominant opinion that favours public ownership in natural monopoly conditions thus argues that the state is best placed to monitor the efficient use of its subsidy, and any other form of organisation would squander public money. The pricing mechanisms alternatively known in economic theory as *average cost* pricing, or *demand-based* pricing, or *second-best* pricing constitute the Ramsey pricing system (Baumol & Bradford, 1970). These allow the consistent determination of welfare-maximising prices that ensure adequate revenue for a regulated multiproduct firm to cover its costs, against recurrent losses due to marginal cost pricing under conditions of decreasing marginal costs and increasing returns to scale. Since fixed costs alone would not lead to Ramsey pricing, the system has often been applied to studies of 19th century railway value-of-service pricing (Baumol & Bradford, 1970), where owing to the presence of scale economies, railways were unable to generate sufficient revenues to simultaneously cover investment and operating costs. The advantages of the Ramsey pricing system are most apparent for natural monopolies which deter entry of other firms to maintain market power.

Origins of Regulated Railway Enterprise

After the initial demonstrations of railway technology by engineers like Richard Trevithick and George Stephenson, development of railways in Britain on a commercial scale commenced with the building of the Stockton-Darlington line. The commission given to Stephenson in 1821 by the new Stockton & Darlington Railway led to improvement of his locomotive design for regular coal haulage, and the trial run of the new locomotive in 1825, with a mixed train of 36 freight and passenger wagons, was a resounding success. Railway development in Britain began in earnest after this event, with parliamentary approval being given to the Liverpool & Manchester Railway Bill in 1826 followed by commissioning of this railway in 1830 (Srivastava, 1971:68-69). Since each proposed line had to secure separate approval from British Parliament, the building of Britain's railway network was carefully coordinated by the state (Murray, 2005), although each independent railway company was privately promoted and financed by private capital mobilised on the London money market. The initial phase of railway development was rapid, with over 6600 miles of railway tracks being laid by 1852. For more than a century till after the end of WWII, the British railways were operated by independent, competitive private companies that grew in enterprise scale through the process of mergers and acquisitions into four large regional

companies under the Railway Act of 1921. However, the lessons of wartime railway coordination made it abundantly clear that there would be no going back to the prewar competition and that railway coordination was there to stay, and the Railway Executive Committee's [REC] opinions in this regard were fully endorsed in 1918 by the Select Committee on Transport, which proposed the unification of railway ownership (Aldcroft, 1961: 5). Although government was thus persuaded to extend the period of control and guaranteed net receipts while a decision was pending, the commercial situation rapidly deteriorated between 1918-21, following sharply increased working expenses and higher compensation being paid out to the companies. The government's eventual intentions had already become clear, since railway nationalisation had occasionally been mooted in Parliament as a possible solution (Aldcroft, 1961: 5). It was however the decline in the financial position of company railways which provided the first avenue for reorganising the railways. Accordingly, a Ministry of Transport was established in 1919, to which considerable powers over the railways and other modes of internal transport were transferred. Most important among these were powers to set and alter railway rates flexibly, with the eventual intent of bringing these into line with working expenses. However, indifferent railway performance over the Depression years and the emergence of sharp competition from roadways prompted the government decision to consolidate the railway companies under the nationalised British Rail, into whose hands they passed on 1 January 1948.

British Rail [BR] thus commenced unified operations amidst the wave of postwar nationalisation under the Labour government in Britain. Although a new phase of public investment in railway modernisation followed, recurrent revenue deficits began to occur from the mid-1950s, which no amount of general subsidies, reinvestments, closures of services and individual subsidies to unprofitable lines could undo. Restructuring of BR in the 1960s under the recommendations of the Beeching Report thus sought to rationalise these deficits through selective service closures. In the 1970s, clarification of the public service obligation [PSO] of BR allowed the commercial restructuring of other railway services, while reformulations of railway management over the 1980s laid the ultimate foundation for the privatisation of British Rail towards the end of the 1990s. The last significant change before actual privatisation was the internal reorganisation of railway management into the management of several business sectors resulting in cost consciousness, investment appraisal and controlled resource utilisation.

Large-scale private enterprise has had an almost permanent presence in the British economy,

except for the short interregnum of nationalisation under the Labour governments that held power immediately following WWII. The railways were nevertheless among the last of the formerly-nationalised British enterprises to be privatised by the Conservative government in the early 1990s, the delay stemming mainly from unwillingness of the proposed privatised managements to subsidise railway operations on uneconomic passenger routes that had to be maintained for sociopolitical reasons. Although a mechanism under which transportation subsidies could continue was ultimately devised to avoid large-scale route closures, this prevented the divestment of state equity in BR from yielding large revenues to the government, unlike those that had accrued from the divestment of other public utilities such as gas, electricity and telecom. The piecemeal process of privatisation has led to major coordination problems in recent times.

In contrast, in France where railway building commenced a little later in 1842, the mobilisation of railway capital was organised under the principle of 'finance by the state and operation by concessionary companies' established in the Railway Bill of 1842. State support for the railways in France did not take the immediate form of direct subsidies, but was rendered in state loans and equity participation. Although the opening of the first railway between Paris and Rouen in 1843 was quickly followed by a construction boom, the problems that could have arisen from railway competition were eliminated through rapid consolidation of the French railways under 6 large monopoly companies (Srivastava, 1971). Following the completion of the trunklines however, railway construction underwent a slump because of investor disinterest stoked by the 40-year charter limitation on private operations, and the lack of competitive stimulus. Consequently, the Railway Plan of 1842 was modified in two important respects by extending the charter duration to 99 years and by providing government guarantees on the minimum rates of return that would accrue to private capital investments. Capital for a renewed railway development phase was also mobilised domestically through bond issues on which the French Government guaranteed 4 percent interest (Srivastava, 1971: 81).

Historical review of railway development in France would divide the prenationalisation period into four distinct phases. The first of these between 1845-67 covers the grand period of railway construction, when the railway network was being created. The ideological battles between free traders and protectionists on the question of state participation in financing infrastructure leading up to the Freycinet Plan marked the second phase of railway development between 1867-83. As no enduring arrangement for financing railway development could be reached, minimal investment was made on network expansion over

the third phase from 1883-1914, despite rising costs. But as traffic expansion continued nonetheless because of increasing efficiency in railway operations, the period also saw growing control of the state over railway operations and the imposition of unrequited social burdens on the railway companies. The final prenationalisation phase between 1914-37 saw listless railway investment on account of the war, financial depression, and the rise of road competition which retarded the recovery of the French railway system from the destruction of WWI. The response to this further amplified the regulatory presence of the state through the Railway Convention of 1921, and culminated in nationalisation of the French railways under the Convention of 1937 which reconstituted them as the Société Nationale de Chemin de Fer [SNCF], or French National Railways, from 31 December 1937 (Caron, 1973).

The history of railway development in France was thus marked by periodic and lengthy debates between the merits of private ownership and commercial operation versus public utility arguments drawing from the Saint-Simonian formulation of social ownership. The first phase of infrastructural investment which focused on the construction of mainlines and a rudimentary secondary network was financed by private companies against guaranteed minimum rates of return on their capital investments. The frenetic pace of railway construction during this phase inevitably caused the emergence of 'excess' transport capacity, which was however soon absorbed by traffic development during the subsequent period. Falling profits and pricing anomalies nevertheless laid the foundation for government intervention and eventual takeover of private concessionary interests.

Nationalisation which followed a period of sustained operating deficits for the railway companies, also represented a situation where the companies did not want to bear, at very limited profit, organisational responsibilities for an enterprise whose costs depended on government pricing-decisions outside their direct control (Caron, 1973). Wartime exigencies after the outbreak of WWI temporarily brought the French railway companies under the compulsory control of government. The nationalised French railways subsequently began functioning as the Société Nationale des Chemins de Fer [SNCF] in a favourable commercial environment following the end of the global depression.

The immediate impact of nationalisation on the French railways was largely positive. The injection of new capital support from the French Government under the postwar Monnet Plan enabled the technological renewal of railway assets and encouraged commercial and marketing innovations, which allowed SNCF to compete aggressively with the roadways by focusing on the natural strengths of railway transportation, namely volumes, economies of

scale and advanced technological specialisation. The Monnet Plan for postwar reconstruction of the French economy thus laid the foundation for concentrated flow of investment into key economic sectors for a period of three decades or the 'Trente Glorieuses' between 1945-1975. While this scale of priorities included the French railways, 38 percent of initial railway investment between 1947-1950 went into the restoration of the SNCF network and only 8 percent into railway modernization (Mioche, 1987: 162). Only after the First Plan (1947-53) did planning emphasis shift towards intensive modernisation of SNCF. Particular thrust was thus laid uptil the end of the Fourth Plan (1962-65) on the electrification of major SNCF arteries (Parès ,1974).

The key to the success of this package after unification of the French railway network under the unified administration of SNCF lay in organisational innovations that allowed the state-owned network to introduce a commercial focus in its freight services, which had been lacking under the monopoly companies. With the role of the state being pronounced at the outset, the debate around social ownership of railways and nationalisation first originated in France.

Railway enterprise in the United States had a comparatively slower start but was organised on a gigantic scale after the conclusion of the US Civil War, with the support of capital privately mobilised from London. The continental scale and strategic importance of US railroad operations however meant that direction had to be provided by the US Federal Government, which was accomplished through the liberal provision of land grants and franchises to the railroad companies (Eichengreen, 1996). While the first railroads built in the early 19th century had been small, locally-financed enterprises that provided branch services to the US waterways, the latter half of the century saw rapid extension of transcontinental lines, combined with the consolidation of smaller lines into much larger corporate systems (Ivaldi *et al*, 2005)..Because of size and scale, the US rail network has since been predominantly based on large-scale freight operations, where the pace of innovation has been sharp. While the control of the railroads has always remained in the hands of private corporates, the system was regulated since 1887 by the US government through the agency of the Interstate Commerce Commission [ICC] established to prevent the abuse of monopoly pricing powers by private operators and ensure the setting of fair carriage rates. Nevertheless, after severe freight competition from roadways began to hit US railroad operations, state regulation has lessened under the Staggers Rail Act of 1980 and is now limited primarily to anti-trust matters.

Commencing shortly after the introduction of railways in Britain, colonial railway building in India naturally drew upon experience and technical skills gained by railway enterprise in the home country. However, the anticipated size of the proposed railway network was much larger in India and also served the two strategic objectives of strengthening military control and preventing the recurrence of famines. Therefore unlike Britain, where the state had primarily regulated and coordinated railway enterprise, in India the role envisaged for the state was much more proactive. The initial government policy on railway construction executed under the supervision of the Public Works Department therefore operated through the principle of *guarantee* companies i.e. privately-held sterling companies which executed railway construction works on free land grants provided by the state by sinking their own capital (Thorner, 1955). A return of 5 percent interest on their capital investment was guaranteed by government at the fixed conversion rate of 22 pence to the rupee, well above the interest yields on the London money market at the time. Surplus profit returns, if any, over and above 5 percent were to be equally shared between government and the private party. Under guarantee arrangements, government also reserved the right to repurchase the constructed lines after periods of 25 or 50 years, at the mean valuation of the company on the London money market (Singh, 1975).

Although till 1869, railway construction in India was generally carried out on these guarantee terms, the system soon proved uneconomical since government found itself paying out substantial sums as interest to construction companies which had incurred massive cost overruns on line construction, while virtually no operational profits accrued. Hence the system was abandoned and the Indian state began the experiment of constructing railway lines entirely on its own between 1869 to 1879, after securing the authority in 1867 to raise loans from the London money market to finance its own public works. As a means of railway finance, the system of state guarantees had assured plentiful supply of capital during the building of India's arterial broad-gauge [BG] railway network, and Thorner has noted that 'capital which moved from England to India under these terms formed the largest single unit of international investment in the nineteenth century.' (Christensen, 1982) With the abandonment of the guarantee system, the onus of raising railway capital passed to the state and had significant consequences on subsequent railway development and the building of feeder networks on the Indian railways.

Despite historical differences in the manner in which railway building was constructed, financed and regulated in these different countries, the technical problems associated with railway financing and operations are thus seen to have remained broadly similar between

them. These may be categorised as

a) long-term problems resulting from creation of infrastructural capacity ahead of demand, i.e. from investment in sunk costs
b) long-term capital liabilities arising from the long gestation periods of railway investment
c) problems of short-term inadequacy of returns to railway capital
d) problems relating to long-term depreciation and renewal of railway assets.

The subsequent discussion examines these issues contextually in terms of their current implications for the Indian Railways [IR]. Attention is initially drawn in section 2 to specific investment problems that arise in the context of infrastructural finance. This is followed in section 3 by a brief historical review of railway financing in India. Section 4 takes up problems in railway finance that arise from the social and commercial objectives that have to be fulfilled by IR operations. Finally, the problems associated with are discussed in section 5. The concluding note considers the cumulative implications of these problems in the light of current financial difficulties faced in augmenting IR infrastructure. A few suggestions are also made regarding the need for railway organisational reforms if such longstanding problems are to be resolved.

Special Considerations in Infrastructural Finance

Investment in large-scale infrastructural enterprises like the railways is characterised by the fact that a major part of the capital invested in the building of primary infrastructure remains irrecoverable until some distant date because of low initial returns to capital and economies of scale. Even when the scale of operations has expanded sufficiently to allow moderate operating profits to appear, the primary investment that represents sunk costs is irrecoverable. Thus 'profits' from infrastructural enterprise are more in the nature of accounting profits that cover the marginal costs of providing infrastructural services. Technical indivisibilities in sunk and fixed capital costs generate decreasing unit costs and increasing returns as the scale of infrastructural services expands. However, while the optimum scales for capital investments in infrastructure is usually too large to be financed efficiently from internal resources, infrastructural services cannot be provided efficiently by multiple enterprises because of market uncontestability and natural monopolies. This therefore argues for public ownership since such services have to be provided at reasonable and regulated costs. The period of suboptimal returns to capital coincides with the long gestation lag between building and operating phases of a service utility. However, in the best

of circumstances, the rate of returns still remains low because of the social need to keep user-prices low. Most infrastructural services thus have to be priced at marginal cost so that only incremental operational costs are actually recovered. Along with this, the 'lumpiness' of the initial investment required for building infrastructural capacity, and the recurrent need for subsidiary investments thereafter in order maintain capacity at optimum levels also act as disincentives to private investors. The unattractiveness of investing at such low rates of return thus adds to the difficulty of mobilising commercial funds for the development of infrastructure.

Because infrastructural enterprises have traditionally been run as state-regulated utilities in most countries, their services are treated as public goods even though they are otherwise expected to operate on commercial principles. In the case of IR in India, such social priorities are reflected in their having to provide subsidised inter-city, medium-distance and long-distance passenger services and mass rapid transit to the urban metropolises, as well as low-cost freight haulage to several agricultural commodities and vital industrial raw materials. General subsidies on such prioritised services have to be recovered from revenues drawn on other commercial services, raising industrial costs in the economy. Another public utility aspect particularly visible in regional planning contexts in India is the use of infrastructural investments as a development device to encourage flows of investment to backward and undeveloped areas of the country. In face of low infrastructural capacity overall, the pressure to provide socially-preferred services has to be accommodated at the expense of commercially-preferable operations, leading to general loss of operational revenues and profitability. Such problems have constantly afflicted IR both in revenue and resource terms, culminating in their current inability to fund the creation of railway network capacity well ahead of demand. The cross-subsidisation dilemmas presently faced by IR thus manifest themselves at several operational levels, such as in competition between passenger and freight services for limited network capacity, and also between different freight service categories.

Another important public utility consideration in the operation of infrastructural services relates to the setting of service tariffs that reflect distributional and regional equity. Thus IR in India is required to charge uniform kilometre-rates and tonne-rates throughout the country, irrespective of the actual costs of sectional carriage and of haulage over various railway gauges. Since the basic tariff rates are moreover pegged low, this encourages the pricing of certain railway services well below cost and increases IR revenue deficits.

Impediments to infrastructural development also arise because of the opportunity costs of

investment, i.e. the scarcity-determined choice criteria by which investors select between alternative investment opportunities. In situations where the scarcity of capital resources is acute, the ability to offer competitive rates of return to capital is diminished by limited investment flows into essential infrastructure. The infrastructural sector is therefore caught in a trap of government indecision on whether to use scarce public resources in building infrastructure or using them to augment other spheres of economic activity. Similar dilemmas are also faced by potential financiers on whether to invest in infrastructural sectors which offer low rates of return but stretch their capital yields over a considerably long period, or in other investment activities which offer more attractive returns but for shorter durations. While both dilemmas can be resolved theoretically through the principle of yield-maximisation, the presence of greater levels of uncertainty and high risk premia in infrastructural investment eventually turn the tide against it. Similar perceptions also guide the choice of investments between alternative transport modes, e.g. between the railways and roadways.

Because of the social and developmental roles that impinge on railways as a vital constituent of modern transportation infrastructure, assessments of comparative performance of a railway system across time and space must simultaneously cover both operational and financial aspects since commercial objectives and the maximisation of capital returns and profit cannot be the *sine qua non* of railway operation. Thus although railway development and the evolution of railway economics has broadly followed the same sequential course across the systems just studied, a range of policy experimentation has also been witnessed on each national railway system, which has had the object of bringing about the best working results given the resource endowment and the economic milieu of each country. The basis of all such experimentation has generally been the need to improve operational performance of the railways within a socially-constrained cost structure.

Colonial Railway Finance in India

Since the time that sterling companies built the earliest railways in India, several metamorphoses in railway capitalisation occurred until the system finally settled into the eventual mode of budgetary finance through the plan and non-plan components of the General and Railway Budgets. The first guarantee arrangements were made with two sterling companies as early as 1849, at a time when railway development in Britain was also in its heyday. However the extension of guarantee only became *de rigueur* from 1856 onwards, when Dalhousie observed in his famous 'Railway Minute' that the conduct of commercial

undertakings did not properly fall within the purview of government (MacPherson, 1955). From 1858-59 until 1918-19, when the ownership of the railways in British India was repurchased by the state against the payment of capital-at-charge and subsequent operating responsibilities entrusted to management companies, cumulative losses to the public exchequer on the payout of guarantees amounted to nearly £6.8 million. The mounting burden of guarantee payments had already aroused public criticism earlier, and for several years after 1869, capital expenditure on railways was in a large proportion being met directly by the state. An alternative experiment with 20-year subsidies that was tried out with two companies in 1862 failed to attract private capital. Nevertheless, following the Great Famine of 1878, which had led the Famine Commission to stress the need for rapid development of railways in India, reliance was again placed on private railway capital without conceding guarantee terms.

After 1893, by which time the BG trunk network had already been constructed, railway development mostly focused on construction of the metre-gauge [MG] branch and feeder network where the scope for operating profits was limited. Hence, terms of the individual construction contracts were frequently amended with the overall object of sustaining capital inflow. While the major initiative for railway development by stimulating private capital inflows devolved on colonial government, some of the Indian princely states also built railway networks of their own either under state or company ownership, while District Boards also contributed to railway capital through special cesses - both cases demarcating an alternative cost-sharing mode. Although by the time the Indian Railway Committee [IRC] reviewed the position in 1920-21, only around one-seventh of the track network (or around 41,000km) remained under company control, extensive public pressure for state ownership of railways prompted the government to take over major railway systems like the East Indian Railways [EIR] and Great Indian Peninsula Railways [GIPR], while letting other lines revert to state ownership through efflux of time. Since this period coincides with similar amalgamations between railway companies in Britain, this reflects the extension of similar thinking on the part of the state.

The period thereafter saw a partly exogenous slump in railway capitalisation levels because of wartime wear and tear and depreciation, which deepened with world depression. However, no further change in railway financing modes occurred until Independence marked the return to state finance through railway nationalisation and the formation of IR (Roy Mukherjee, 2002). The capitalisation needs of IR have since been met through budgetary provisions made by the Union Government of India. However, unlike other nationalised

railway systems such as SNCF which were able to reap the benefits of the postwar revolution in railway technology, IR could not successfully maintain the pace of infrastructural investment set during the early Five-Year Plans [FYPs] and have consequently surrendered their former role as prime movers of the economy to increasing inroads from the roadways. Certain reasons to which this is attributable are now explored.

Current Commercial and Social Constraints

It must be stated at the outset that the character of transportation demands in the Indian economy has also changed dynamically over the planning period. The major aspects of change most visible in this process have resulted from growing population and urbanisation, vastly altered industrial location patterns and regional transportation demands, and the changing commodity-character of freight flows across the country. From this perspective, no infrastructural plan can be framed in perpetuity since transportation infrastructure must remain adaptable to predicted as well as evolutionary changes within the economy. However, a peculiarity of IR is that, even while multiplying manifold both in size and scale of operations over the era of planning, it has remained a departmental undertaking of the Ministry of Railways without acquiring separate corporate identity. Complaints in public media about the dearth of professionalism, management discretion and work culture might in fact be rooted in this outmoded form of organisation which - at least at operational levels - is viewed as the manifestation of monopolistic attitudes within a public utility. In some sense therefore, the successful freight competition from roadways not only reflects economic differentials but also quality-of-service differentials vis-a-vis railway services.

Even though public-utility orientation will remain paramount for the railways in India so long as they operate in the public sector and the priorities of national development remain unredirected, the major adaptation to policy that has to be made immediately is the restoration of profitability of railway operations, through competitive cost-reduction rather than monopolistic tariff revisions. As pointed out earlier, a clash between social and commercial objectives is often inevitable in infrastructural operations. While the pace of railway development in the long term would depend upon fair returns being provided to capital investments in IR, the scope for such returns is in practice circumscribed by the extent of social subsidies. In this aspect, state-operated railway systems everywhere operate as the antithesis of commercial monopolies. Nevertheless, the sustainability of social objectives in railway enterprise depends on constant ability on the part of the railways to operate efficiently and competitively by bringing down unit traffic costs.

The operation of IR as a quasi-bureaucratic undertaking proves an obstacle to this because of the addition of the tacit social constraint of maintaining the railway workforce at currently unrealistic levels. While wage components in railway costs become consequently high, the scope for inducting cost-reducing technology is also affected. Even with upgraded railway technology having been incorporated in recent years, the rate of factor application per unit traffic (i.e. input-output ratio) thus remains high on IR. For IR to turn this around and to function on more commercial lines, the disadvantages of monolithic and monopolistic organisation have therefore to be overcome, even as the efficiencies and economies of scale resulting from that organisational mode are retained. Sufficient scope exists to improve the coordination between IR and the major railway users both in institutionalising present operations and in planning capacity expansion, and also in the integration of railway development into regional planning exercises. Once again, the degree of coordination called for requires that IR shed its departmental attitudes of balancing budgets, and acquire a forward-looking professional mindset. It is fairly obvious that the first result of such a shift will be the planning of railway infrastructural capacity well ahead of demand and the creation of an ability to engage the government ministries and PSUs constructively when seeking capital funding.

While railway operational performance of railway systems is usually assessed on the trends in certain well-identified financial and operational indicators in common use all over the world to analyse the working results of transportation enterprises, this evaluation has been made elsewhere (Roy Mukherjee, 2002) and is beyond the scope of the present paper.. The present study therefore draws attention to the analysis of financial returns and liabilities to railway capital which hold diagnostic importance in determining the viability of large-scale railway enterprise, and to the long-term consequences of historical policy decisions have consistently plagued IR, leading to the problem of inadequacy of returns to railway capital-at-charge.

Capital Returns and Dividend Liabilities

It has already been noted above that many of the special problems associated with the capitalisation of large-scale railway enterprise arise because of the technical indivisibility of railway assets that lead to joint costs of service, the scale and lumpiness of railway-capacity investments that render these beyond the means of private investors, the 'sunken' character of railway infrastructural costs and the inadequacy of capital returns. This does not however detract from the importance of improving the efficiency of supply of railway services.

Within the overall policy directives in which IR currently operate, the emphasis on the social objective of achieving allocative efficiency in railway services can often be an impediment to the generation of adequate capital returns in line with other large commercial enterprises.

Capitalisation of railway enterprise requires the continued inflow of capital merely to sustain the existing railway establishment. Investment on new capital projects that expand railway operations is liable to be undertaken only when incremental capital outlays are also assured. The initial investment that is 'sunk' into building the railway network is followed by investment demands for track and asset renewal, maintenance of railway inventories, etc. Thus an increasing trend in incremental capital outlays is imperative for the creation of railway network capacity ahead of demand. When such incremental investment is not forthcoming, this proves detrimental to railway development because of capital inadequacies and the consequent deterioration in operational performance. Because of increasing returns, repeated-dose capital investments thus form the backbone of sustained profitability in railway operations.

Study of the flow of railway capital in India can help identify the slack and peak investment periods that have affected the operational performance of railways. A preceding study of investment trends and the financial position of IR reveals that periodic replenishment of capital stock becomes imperative both for maintaining operational levels of railway services as well as for tuning transportation capacity to the momentum of development generated within the economy (Roy Mukherjee, 2002). While exogenous factors have from time to time been responsible for deterioration in the finances of the railways, policy attitudes towards infrastructural investment in general also assume a decisive dimension. Besides the limitation of a part of IR revenues having to be mandatorily deposited towards general revenues of the government, interest charges on railway capital borrowings lower net earnings and the scope for further incremental investment. As a result, the depreciation reserves which are statutorily maintained for the renewal of railway assets have periodically been drawn upon to tide over a financial crisis, such as for instance, during WWII when withdrawals from the Depreciation Reserve Fund [DRF] were made towards meeting railway working expenses and contribution from the railways to general government revenues had to be deferred (Kulkarni, 1991). The importance of the relative modes adopted for financing renewal and net investment on the railways in India hardly needs further emphasis.

The most interesting aspect of railway reforms in the period after WWI relates to revision of the modes for financing replacement investment. Till that period, all profits from state-

owned railways went directly to the public exchequer and all financial resources for railway operations were allocated by the government. Separation of railway finances from general government finances was made in 1924 under recommendation of the IRC or Acworth Committee, with the purpose of rendering the Indian railway administration independent of the Finance Department, and for introducing in-house railway accounting procedures accompanied by annual contributions from current railway revenues to a reserve fund explicitly set up to finance the renewal and replacement of railway assets (RCC, 2006:7). Railway finances have been administered since 20 September 1924, by the Financial Commissioner, Railways, in separation from the Accountant-General, Public Works Department. The first of the above purposes in fact indirectly acknowledged the need to delink railway capital flows from the trends in economic activity which define the size of government budgets. The IRC recommendations in general sought to professionalise railway management while maintaining constant internal capital support for railway operations. It needs to be noted that most of the pre-Independence railway network was already in place in 1924 when the IRC recommendations were made. Thus the object of the recommendations was not primarily to finance railway expansion, but to maintain existing operational levels without capital drawback - a position which remained fundamentally unchanged until the inception of planning in independent India necessitated the sinking of new capital into railway construction and upgradation.

In order to compensate government for the loss of direct revenues that would ensue from the separation of finances, the two substitute concepts that arose were that of a contribution or dividend from working surpluses earned by the railways, and an interest against railway capital-at-charge. The first of these, as an annual contribution to the general revenues of the government, was to be payable as first charge on net railway receipts, and would be secured against the reserve fund. The annual contribution was later reviewed and revised under the Railway Convention of 1943 into a specified sum payable as dividend. Since the contribution over and above interest on capital has been payable to general revenues in all years since 1924, with the eventual railway surplus or deficit only being accounted after its settlement, the dividend provision has become the bone of contention ever since IR began to suffer shortfalls on the capital account and in budgetary support.

A Reserve Fund had also been created for the Indian railways through the Separation Convention of 1924, to which credits were liable to be made from net revenues after the contributions to general revenues had already been made. The proportion of surplus that could be so credited was scaled by a sharing formula between the railways and government

on the total magnitude of surplus earned in any given year. After the nationalisation of the Indian railways in 1950, the fund was renamed the Revenue Reserve Fund [RRF] and appropriations from the railway surplus could be credited to it subject to parliamentary approval. The RRF was to serve as security for dividend contributions to be made to general government revenues, and could also be tapped to meet any current deficits that might occur against railway operations. However, the introduction of the principle of deferred dividend liability from 1978 onwards led to dissolution of the RRF since its original purpose had been lost.

The review of railway conventions made in 1949 after Independence, endorsed the nationalisation of the Indian railway companies, according the general taxpayer the status of sole shareholder. The Government of India gave effect to this recommendation on 1 April 1950. Although - after slight modifications in their spirit - dividend contributions were liable to continue, dividend reliefs were given on certain exempt categories of capital including losses on strategic, new or unremunerative lines, and a part of current railway works-in-progress. On the latter works however, and on shortfalls in net railway revenues, the payments due would cumulate into a deferred dividend liability payable against future surpluses. Total payments made by the Indian railways to general revenues of the government between 1924-25 and 2005-06 amounted to Rs.38920 crore, or 74.25 percent of total railway capital-at-charge at that point (RCC, 2006). Till the Railway Convention of 1949, railway payments had also included the concept of an annual contribution from surplus, and a contribution of Rs.474.86 crore over and above normal dividend had been committed on this count between 1924-25 and 1949-50, before the concept went out of force.

Dividend payments by IR accrue as a first charge against a perpetual liability on non-repayable capital loans sourced through budgetary support from general government revenues, bearing interest in perpetuity. Together, all such loans are accounted as railway capital-at-charge. Since IR capital-at-charge has risen from Rs.827 crore to Rs.52417.69 crore between 1950-51 and 2005-06, the dividend payment on this has also mounted considerably. A supplementary source of capital funding approved by the Railway Convention Committee constituted by Parliament in 1991 had credited some part of net IR revenues to a Capital Fund which could be used to finance capital projects. However, these contributions could not be sustained by IR subsequently when the revenue position deteriorated. The Capital Fund has been revived since 2005 under recommendation from the Railway Convention Committee constituted in 2004. All other railway investments made by

IR are to be met from internally generated resources, including expenditure on renewal and replacement of railway assets, which may be met from the Depreciation Reserve Fund [DRF]. Except over the depression years between 1930-31 and 1939-40 when there were temporary defaults in dividend payments, the railways were able to make regular dividend contributions to government revenues until the end of the 3FYP in 1965-66. Thereafter as net railway revenues slipped sharply, regular dividend shortfalls began to appear which were made up either by withdrawals from the RRF under which they were secured, or through current borrowings from general revenues, or else were carried forward as deferred dividend obligations. The largest shortfalls in dividend payments occurred towards the closing years of the 4FYP, and at the commencement and the end of the 6FYP.

An Expert Group on the Capital Structure of Indian Railways was accordingly constituted by the Planning Commission preparatory to the 6FYP to explore the capital requirement for meeting the technological challenges and alternative means to raise it, and quickly submitted its report in 1978. The need for a comprehensive revision of transportation policy with particular emphasis on intermodal infrastructure, which had also become simultaneously apparent, was entrusted to the National Transport Policy Committee [NTPC] set up the same year to advise the Planning Commission in this respect.

A major task accomplished by the Expert Group related to outlining the need to enhance the internal provisions made by IR against asset depreciation that are incorporated in the Depreciation Reserve Fund [DRF]. This was deemed to be as essential as meeting dividend payments to government from the perspective of internal resource mobilization. Another aspect in the Group's recommendations that merits contemporary attention relates to the financial overburden being carried by IR on account of its having to make additional contributions from its operating surpluses to the revenues of government, over and above its perpetual dividend liability. In the view of the Group Report, annulment of this requirement could effectively provide relief to IR and raise internal capitalization at a time when budgetary support was consistently dwindling (RFFC, 1993). A different perception within the Finance Ministry led to rejection of the recommendation, on grounds articulated in the dissenting note attached to the Group recommendations by its Member (Finance). A reading of this note is fairly indicative of the mindset of the Ministry, since the grounds cited include prior endorsement of the surplus payment practice by previous Railway Conventions, and most importantly, the plea that with financial arrangements of the Government of India having been made all along under expectation of certain revenues, a departure from past practice would not be well-advised (RFFC, 1993). Thus, in recent years, as budgetary support has dwindled, capital investment by IR has had to depend increasingly on lease-

financing through funds mobilised by the Indian Railway Finance Corporation [IRFC] (RCC, 2006).

Indian Railway Capital Depreciation and Replacement

Other special-purpose capital funds maintained by IR at different points of time included the Development Fund [DF], the Accident Compensation, Safety & Passenger Amenities Fund [ACSPF] and the Pension Fund. Another source of extra-budgetary bond financing was created more recently with the establishment of the IRFC in 1986 to organise leasing of railway rolling stock. Since the primary source for renewal and replacement funding had shifted in 1924 under IRC recommendations from current railway revenues to the DRF, a few words might be said about evolution since then of the depreciation provisions. The 1924 Convention had first laid down as a scientific principle that replacement and renewal of railway assets should be financed by funds specifically laid by for that purpose rather than by drawing upon current revenues (RCC, 2006:19). Although the amounts to be credited to the DRF initially covered the original cost of renewable assets, it was decided after 1936-37 that drawals from the fund could be made on the basis of either original or present cost, depending on which of these was greater, even though any excess replacement expenditure over original cost remained chargeable to capital. Only after 1949 did the depreciation provisions become more realistic, since they now allowed the securing of railway assets at full replacement costs, allowing also for improvement and inflationary components. Annual contributions to be made to the DRF by the railways had, before nationalisation, been estimated either by accounting or *ad hoc* provisions against the depreciation of wasting and non-wasting assets. The principle of fixed appropriations was continued between 1950 and 1983, until the practice was changed under recommendations of the Railway Reforms Committees [RRC]. Contributions to DRF since then have been made at around 2.6 percent of the current replacement cost of assets, with allowance of 8 percent for inflation upto 1992-93, which was subsequently raised to 10 percent.

The RRC recommendations had basically been made after the Committee was confronted by huge physical arrears in renewal and replacement of railway assets which would require consolidated investments of Rs.26,000 crore (estimated at 1981-82 prices) to wipe out, and the 2.6 percent provision was calculated against the current replacements costs of these worn-out assets (RRC, 1982). The practice before this had been to subjectively fix the depreciation appropriations in line with the estimated withdrawal for every given year. Also, though DRF was not included within overall plan resources till the end of 4FYP, its inclusion thereafter had left IR powerless to decide its own priorities for replacement and

renewal, leading to a paradoxical situation where as DRF balances rose steadily, the arrears in physical renewal also mounted. A certain amount of accounting jugglery between the Finance Ministry and the Railway Board was associated with this circumstance, which arranged that additional capital support to IR from the government's general revenues would be scaled according to the balances accumulating within the DRF. Although, superficially, the arrangement should have had no effect on capital expenditure by IR, what resulted in practice was that the additional capital grant attracted perpetual dividend liability, which would have not been the case if the IR had been allowed to finance renewals from internal resources which had been vested in the DRF (RFFC, 1993: 48-49). Another RRC recommendation designed to ease unfair capital pressures on IR stated that appropriations to the DRF should not be given the go by in attempts to meet dividend obligations during years when the revenue performance of IR had been bad. Previous occurrences of this practice had often bled IR of its internal resources.

Summing up the foregoing, the asset-renewal position on IR has hardly changed since the time when the IRC was constrained to make caustic observations on the bad accounting practice of allowing old, overaged and fully-depreciated railway assets to remain on the books, instead of writing them off from Revenue (IRC, 1921). Since the practice has since continued through deferment of capital expenditure on renewals and replacement, and as just stated, through payment of dividends ahead of making DRF appropriations, the railways in India have often been able to present an 'unreal, rosy financial picture' in the Railway Budgets (RFFC, 1993: 48-49) hardly reflective of their dire assets position.

The fact that no separate compensatory provisions have been made at any given time against the arrears of depreciation arising from the deferment of renewal expenditure in preceding years has been another disturbing feature. High levels of such arrears have existed on the Indian railways system during the two world wars, the depression years and again, during and after the 1970s. Even the RRC recommendation requiring that special budgetary support of Rs.260 crore p.a. be extended as a subsidy for wiping out arrears has not been assented to. The RRC also noted specifically that tariff revisions should not be made against these arrears - which actually represent costs that should have been written off - since this would penalise current railway users for past omissions (RRC, 1982). It may also be noted from the above that perpetual dividend liability has worked to the long-term detriment of railway finances, since no consideration has been given to revenue shortfalls while requiring the dividend to be credited compulsorily. Hence in such cases, the RFFC recommended waiver of the dividend shortfall for a maximum period of 5 years, over which Indian Railway would be

required to nurse their operations back to health. Although no occasion has arisen to seek support, after the uptrend in rates and revenues following the recent IR tariff revisions, the evidence of the past makes a strong case for inclusion of this provision.

Conclusion

Strangely, the reordering of infrastructural priorities which led to pressure on IR to raise capital support from internal sources did not reduce dividend and other associated obligations. For one thing, renewed expansion in IR capital-at-charge without overaged assets being written off raised interest liabilities. With dividends from net revenues to the state being accorded the status of first charge, commitments to dividend were made ahead of reserve fund appropriations leading to substantial deferments of replacement expenditure at times when IR revenue performance was poor. The practice of carrying dividend liabilities in perpetuity, as noted earlier, was instituted by the IRC in 1924 and was designed to compensate the state for the loss of direct revenues which followed the separation of railway finances from the general exchequer. To this day, dividend payments still remain a major assured contribution to the revenues of the Government of India. Thus despite considerable debate over the issue and recommendations of several Railway Committees for either lessening or abolishing dividend charges, the Government has been reluctant to accede.

The net impact on the capital position of IR has been damaging in at least three ways. Firstly, the dividends paid out are not necessarily matched by equivalent current injections of railway capital by the state. Secondly, since in bad years dividend charges have had to be paid ahead of contributions to the depreciation reserve, IR replacement and maintenance suffer and lead to a backlog of dead stock - this has been highlighted, in preceding studies, particularly in the context of the IR wagonfleet where substantial backlogs in replacement have been created. Thirdly, the annual outflow of railway revenues against dividends weakens the operating surplus earned by IR and has in recent years forced greater dependence on borrowing and lease-finance for capital mobilisation.

An appeal that has been made on several occasions by IR which was also echoed in a recent White Paper relates to the social burden carried by the railways on uneconomic services and sectors. This burden, which exists on most major railway systems across the world because of the public-good character of railway services, was estimated by IR to amount to Rs.3282 crore in the year 2000-2001 (GOI, 2002). The practice of fully subsidising national railways for such losses, as followed in most countries, does not exist in India. Thus IR in essence carry dual social obligations: firstly, they have to absorb operating losses on uneconomic

sectors within the operating surpluses earned from others and yet show positive surpluses overall; secondly, they also have to support the general budgetary resources of the government by contributing dividends and additional amounts when their financial performance is positive. The joint operation of these dual obligations deeply affects the viability of internal resource mobilisation for railway development. IR are at a relative disadvantage in this respect when compared to other major state-owned railway systems like SNCF. Moreover, the fact that subsidisation of a segment of railway operations in India is in effect made by IR rather than by the Government of India speaks rather poorly of government attitudes towards maintaining the 'public-good character' of railway services. In practice, it is neither government nor IR which subsidise unremunerative services. It is instead the captive users of IR's bulk-freight services who carry this liability in the form of the cross-subsidisation. In a sense, IR is again forced to misuse its monopoly position to pass on social burdens in the form of inflated freight charges adding to the eventual costs of producer goods. The reality is even more disturbing: this shrinking number of bulk transporters have to carry not only the burden of subsidising low rated freight traffic such as in foodgrains, but also of subsidising passenger services, unremunerative lines, as well as IR contributions to the finances of the Government of India.

IR has therefore appealed - so far without result - either for the writing-off of dividend obligations on historical investments after a fixed period of 40 years or for full offsetting of the notional subsidy that has to be borne on account of social burdens. This claim has been endorsed subsequently by the Railway Commission Committee set up by Parliament in 2004 to look into the question of IR dividend rates (RCC, 2006). The present financial arrangements under which IR operates have only promoted higher and higher freight tariffs without competitive cost reductions, leading to substantial losses of traffic in the highly-rated freight segments. Clearly therefore, the frequent tariff revisions have exceeded the standard railway rate-setting principle of 'what the traffic will bear', and have rendered railway services uncompetitive in many freight segments while making privately provided roadways services appear more cost-effective than they really are, thus promoting cascading cost escalations across the Indian economy. For railway services in India to be restored to competitiveness and for their infrastructural potential to be fully realised, thorough financial review and reforms are therefore needed.

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Life Insurance Corporation of India in the Light of Globalization

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Abstract

This paper explores the impact of globalization on Life Insurance Corporation Of India (LICI), a nationalized financial institution of the Government of India. Though the efficiency of LICI is not shaken even during the period of globalization but it is a matter of great concern that 13 private insurance companies have already started insurance business in India. In order to combat the challenges of changing situation, LICI should try to raise its efficiency by developing the ability of its agents who are the pillars of the premier organization.

Key-words: LICI; IRDA; Neo-liberal Globalization; Open economy; Optimum Efficiency; Liberalization.

Introduction

In its true sense, globalization means a continuous process of historical evaluation. It means enhancement of men's productivity through scientific and technological changes. This concept is nothing new. It has been started 13000 years ago in the society. This idea of globalization is inevitable. No one can discard this concept because negligence of this concept implies negligence of human beings.

But in recent times, 'globalization' means 'neo-liberal' globalization. The theory of this globalization stands on the following seven economic principles:

(a) The market will decide in which sector, the investment is required maximum.
(b) 'Optimum efficiency' will be achieved by the 'private ownership.
(c) In respect of management, private sector will be more efficient than government
(d) The concept of subsidy will be abolished.
(e) The government has no responsibility to eradicate the 'social discrimination'.
(f) "Individuals Interest" in the society will be given first preference.
(g) No one will be able to interfere with the individual's liberty in the society.

The Global Scenario

There was a time when the economy of USA and various European countries were deemed as the only promising economies in the world. But the emergence of Japan during the middle of the 20th Century as a major player in World economy gave an impetus to the growth of the World economy. Again the emergence of South Korea, Hong Kong, Philippines and Singapore as Asian tigers enriched the economy of 1980s. But presently the maximum attention of World centres of China and India. It is because both the countries are not only thickly populated, but also they can provide potential prosperous economy to the world because of their scientific development coupled with a large number of skilled personnel in both the countries.

We already feel that the process of globalization in terms of a market economy is a *sine qua non* for the achievement of our ends. No country can afford to follow an isolationist policy and keep itself aloof from the effect of such process. In consequence, the Indian economy is changing rapidly from a controlled economy to market-driven economy i.e. openness and competition.

The new economic policies have heralded in our country, buoyancy in the market, requiring the business world to reorganize itself under the aegis of the W.T.O. The financial sector, in particular, has been enjoying the creation of newer avenues both for the industry, as well as for the individual i.e. the consumer.

The prominent economic factors that design the course of industrial development in recent times are:

(a) Command economy turning into market economy,
(b) Growth in foreign exchange reserves due to economic liberalization,
(c) Growth in the Indian stock market in consequence of the inflow of foreign capital,
(d) New opportunities and healthy competition through regulatory controls in the interest of global integrity.

The newly created opportunities have come as a blessing to the customer. Now, a customer enjoys several rights, by choosing better products and services as well as voicing complaints and protests through grievance redressal mechanisms. The power of the customer makes it imperative for service providers to focus on Total Quality management as an approach to improve performance. In this connection, performance is not only to be considered for

evaluating individual overall growth but also, growth in respect of the overall market. These challenges have given a new lease of life to the Life Insurance Corporation of India.

Nationalization: Vision and Present Position

Life Insurance Corporation (LICI) was nationalized in 1956, keeping in view the objectives – mobilization of national savings, spreading the insurance message to the poorest sections of the society, and putting the money for public utility services,. The erstwhile Central Finance Minister, Mr. C. D. Deshmukh stated, "the misuse of power, position and privilege that we have reason to believe, occurs under existing conditions, is one of the most compelling reasons that have influenced us in deciding to nationalize life insurance" (Sud, 1998, p.9). Since its inception LICI has been quite successful in fulfilling its objectives and playing a vital role in the country's economy.

The percentage of LICI investment to national income has increased from 3.4 per cent in 1956 to 6.26 percent in 1996. Today Life Insurance Corporation of India is not only an insurance organization, but is a movement in itself (Govardhan, 1996, p.6). Up to 1996-1997 the Corporation had 7 Zonal Office, 71 Divisional Office, 2024 Branches operating at 1363 Centres and an army of over 5.5 lakh agents and nearly 18000 Development Officers. Now the figures have positively changed.

Year-wise business performance of the Corporation shows the basic tendency of its growth. The year 2003 – 2004 saw the LICI registering substantial growth in all facets of new business (i.e., sum assured, number of policies, first premium income) activities reflecting its continued efforts towards increasing life insurance awareness and coverage all over India. The year 2003 –2004, which was the 4th in competitive era, was yet another year of great significance for the corporation. Despite unfavorable tax regulations, especially the amendments to section 88 (2 A) and 10 (10 D) of Income Tax Act. 1961, the Corporation was able to bring in a total new premium of Rs. 12,179 crore under both individual and group business as against Rs. 11,335 crore in the previous year recording a growth of 7.45%. LICI continued to be the market leader and was able to extend coverage of Rs. 1,99,698 crore of Sum Assured (S.A.) under 2.70 crore policies with First Premium Income (F.P.I.) of Rs. 8,567 crore in individual assurance. The growth rate was 9.87% in terms of Number of Policies (N.O.P) and 11.14% in terms of S.A., while there was a negative variation of 11.58% in F.P.I., which was driven largely by the deficit in single premium and short-term premium policies (Mather, 2004, p.6).

The Central Office of LICI disclosed the above information, which shows the total new business of all the LICI offices of India only. With modest pride, LICI can claim to have emerged over the years as a symbol of financial security and as a premier financial institution in the country, which encompass over 12 core people in its protective fold (Govardhan, 1996, p.6).

In the year 1991 the Government of India took a decision to change its economic policy. From that year economic reforms started in India. In consequence of that, India's pattern of economy is changed in to market economy. The term 'market economy' is closely associated with 'open economy'. The impact of globalization on country's public sectors is significant. They are on the verge of direct competition due to open up of the economy and insurance industry. Many private life insurance organizations have already started their insurance business in India.

In the context of globalization, the position of life insurance industry in India has radically changed. So far, thirteen private insurance companies have started insurance business in the Indian insurance market. As a result, the market share of the State incumbent (LICI) has declined. After opening up of insurance industry in 1999, the market share of LICI has decreased to about 76% from 100% (as of August 2005). The private players occupied about 24% of market share, though they are suffering from the problem of negative profit. The business statistics (Insurance Regulatory & Development Authority, Annual Report, 2003-2004) of life insurance industry for the year ended 31st March 2004 shows that LICI was able to achieve a profit of Rs. 551.81 crore, whereas the accumulated loss of thirteen private life insurance companies was Rs. 966.37 crore. But in the field of general insurance, six out of eight private players have been able to achieve a profit of Rs. 95.38 crore during the period ended 31st March 2004. Only two private insurers have suffered loss amounting to Rs. 28.34 crore during the period 2003-2004. However, the public sector companies were able to make profit of Rs. 1343.99 crore during the period 2003-2004. Hence, we can conclude that the performance of the public sector in insurance business has been better than private players in the post-liberalization period. The name of new entrants (Table-I), the market share occupied by them (Table-II), and the profit and loss of insurers during the period ended in 31st March 2004 (Table-III) are shown below:

Table – I

Private Joint Venture Insurance Companies

Sl No.	Company	Indian	Foreign
1.	ICICI Prudential	ICICI	Prudential (U.K)
2	Max New York Life	Max	New York Life (New York) Standard Life (U.K)
3.	HDFC Standard Life	HDFC	Allianz Holding (Germany)
4.	Allianz Bajaj	Bajaj	Zurich Insurance (Switzerland) American Int. Group (USA)
5.	Birla Sun Life	C.K. Birla Group	Chubb (USA) Allstate (USA)
6.	Tata AIG Life	Tata	ING (Netherlands) Cardiff SA (BNP Paribas Bank)
7.	OM Kotak Mahindra	Kotak Mahindra	GIO (Australia)
8.	AVIVA LIFE	Dabur	Met Life (USA)
9.	ING Vysya Life	Vysya Bank	
10.	SBI Life	SBI Bank	
11.	AMP Sanmar Group	Sanmar Group	
12.	Met Life	MA Chidambaram	
13.	Sahara Life	Sahara India	

Source: Deccan Herald, Dated 14th May 2005 and The Economic Times, 21 March 2004.

Table – II

Market Share of Private Life Insurance Insurers As On August 2005

Serial No.	Name Of Player	Market Share (%)
1.	ICICI Prudential	6.93
2	Max New York Life	1.28
3.	HDFC Standard Life	2.98
4.	Allianz Bajaj	4.73
5.	Birla Sun Life	1.72
6.	Tata AIG Life	1.66
7.	OM Kotak Mahindra	0.71
8.	AVIVA LIFE	1.08
9.	ING Vysya Life	0.54
10.	SBI Life	1.46
11.	AMP Sanmar Group	0.46
12.	Met Life	0.37
13.	Sahara Life	0.03
Total		**23.93**
14.	LICI	76.07
Total		**100.00**

Source: IRDA Reports

Table – III

Statement of Profit & Loss Of Life Insurers For The Period Ended 31st March 2004

(Rs. In Crore)

Life Insurer	Losses	Profits
1. ICICI Prudential	221.58	
2. Max New York Life	232.76	
3. HDFC Standard Life	23.44	
4. Allianz Bajaj	26.81	
5. Birla Sun Life	77.74	
6. Tata AIG Life	58.09	
7. OM Kotak Mahindra	92.42	
8. AVIVA LIFE	64.2	
9. ING Vysya Life	62.99	
10. SBI Life	16.41	
11. AMP Sanmar Group	77.6	
12. Met Life	12.13	
13. Sahara Life	Not Available	
Sub Total	**966.37**	**551.81**
LICI (Profits)		
Life Insurance	**966.37**	**551.81**

Year-wise business growth of LICI (Table-IV) and also year-wise investment growth of LICI (Table-V) are shown below:

Table – IV

Year Wise Business Growth of LICI During Post Liberalization Period

Year	'99-'00	'00-'01	'01-'02	'02-'03	'03-'04
Particulars					
Total New Business					
Individual (Rs. In Crore)	4343.54	5940.82	9170.11	8562.44	9509.44
Group (Rs. In Crore)	3172.35	3720.70	4735.53	7836.88	17201.40
Business In Force					
Individual (Rs. In Crore)	25545.28	30716.27	38619.57	45555.96	53034.99
Group (Rs. In Crore)	3637.36	4253.63	4790.36	5919.67	6909.69
N.O.P. In Force (In Lakh)	48.28	53.86	59.94	67.22	74.40
Life Fund (Rs. In Crore)	7335.41	8858.32	10809.95	13412.59	16094.57
[Surplus]					

Table – V
Year Wise Investment Growth Of LICI During Post Liberalization Period

Years	'99-'00	'00-'01	'01-'02	'02-'03	'03-'04
Particulars					
Investment (Rs. In Crore)					
a) Book Value Of Total Investments	**6969.71**	**8356.71**	**10327.76**	**12621.14**	**16339.47**
b) Book Value Of Socially Oriented Investments	**5613.71**	**6663.14**	**8255.71**	**10165.57**	**12195.47**

New Avenues for Life Insurance Industry

After the Report of the Malhotra Committee on Insurance Reform's is tabled, the prospect of opening up of the Indian insurance market becomes bright. At this moment Indian Insurance market has been opened up. Thirteen Private Insurance Companies and Brokers have started their insurance business in India. But, again a general perception that the Indian insurance market cannot stand to any competition and it has become weak with so many ills, easily dampens the spirit of such a bright prospect. Now LICI is not the only organization that deals in life insurance business in this country. The Private Insurance Companies and Brokers have got themselves involved in direct competition with LICI to acquire the insurance market in India. Despite that fact, LICI is the market leader still today. But in respect of tapping the household savings, LICI is used to face a tough competition here.

It is also a noteworthy fact that in our country people's first choice is never any insurance. To them insurance is nothing but a mere saving opportunity. But the people of advanced countries like United Kingdom, United States of America etc. always welcome insurance as their first choice, since insurance means to them not a pure savings instrument. Consequently, LICI there faces a tough competition in savings market.

Insurance Regulatory Development Authority: The Way Forward

To execute the policies on reforms and liberalization and probable entry of private players following the recommendations of the Malhotra Committee on Insurance Reforms (1994), an Insurance Regulatory and Development Authority (IRDA) is built up (1999). It is determined that Insurance Regulatory & Development Authority's chief function is to regulate, elevate and ensure orderly growth of the insurance business. It will also operative actively to safeguard the interests of the policyholders regarding to assigning of their policies,

nomination by policyholders, insurable interest, settlement of insurance claims, surrender value of policy and other conditions of insurance contracts. Insurance Regulatory & Development Authority will also enjoy the power to undertake inspection and conduct enquiries and investigation including audit of the insurers. It can also issue licenses to private sectors to enter into Insurance Business. After the entry of private players from the year 2000, the difference created by the new players is self-evident. The business, which was once controlled by monopolistic LICI to almost 100%, was reduced considerably. As per the figures available with Insurance Regulatory and Development Authority for the period ended August, 2005, the 13 private players have grabbed nearly 24 percent market share from LICI in terms of premium underwritten as against 17.70 % in August, 2004.

The packaging of new products and the effective use of delivery channels, have woken up the State incumbent (LICI) to get prepared for stiff competition.

Vision 2000 and Beyond

The last decade of the 20th century will remain famous forever as it brings froth a massive change in our economic environment. As a result, every possible industry in our country now will have to combat some new challenges to clear out its passage for progress. The decade will also remain memorable forever as it carries some logical innovation in association with some excellent economic opportunities.

It is now a conjecture that in the 21st century the Insurance will face a major challenge. The challenge is of course that of the management of funds. When IRA becomes established and it starts functioning, the investment norms are gradually relaxed. What happens then? There will be more investible funds to be invested in the capital market. So, there lies every possibility that some of those funds may not find rich opportunities for their investment. Such a problem can be resolved by using scientific professional fund management.

Due to the integration of the Indian Economy to the global market and the public sectors becoming an open field for competition. Indian market now observes the dawn of a new era. Under the liberalization policy of the Government, some visible and significant changes as natural by-products of the above said policyholder over the Indian economy. The significant changes are furnished below:

(a) In decision making Information Technology plays the role of a prime mover.
(b) The durability of product largely depends on technological innovations.
(c) Customers have become too much conscious so far as their rights and availability of marketable products are concerned.

(d) Steps to ascertain the consumers' rights and interests are duly taken up.

The formation of Consumers Forum and Consumer Service Organizations and competition in the market have created a vast scope before the consumers to make their right choice among innumerable products and services. Today a consumer enjoys the power to punish or reward an organization. It is imperative that from an "era of customer satisfaction", we move to an era of "Consumer Expectation" and then of course graduate to "Customers Delight" (Sahoo, 1997, p. 29). Such a transformation in market economy requires all to do what they are ascribed to do. And to attain success in this field, punctuality as well as Zero defect in performance are mostly desirable.

The insurance market that is gradually developing in the 21st Century will certainly give vent to the new kinds of products to come into the markets by its command of constant technological up gradation. So with the turn of a century, consumers would be able to use a different market from the conventional one. Lastly to manage such a new market and to satiate the customers' growing demands, there must be an urge for competition working among all the business quarters.

Conclusion

Among the public sector financial institutions, LICI plays a vital role in various governmental welfare and financial activities. Its contribution in employment generation has also been remarkable. Before nationalization, LICI and General Insurance Corporation Of India (GICI) procured 50% of total insurance business from rural areas. In recent times, LICI's investment in the Indian money market is Rs. 230923.88 crore. 80% of that investment is on sectors like electricity, housing, drinking water, and road transport. LICI's contribution towards the 10th five years plan is also notable. This apart, LICI gives dividend and tax to the government every year. An important question that arises in this regard, is: Can the private insurance companies and brokers, who have already started insurance business in Indian market, give something from their profit to the government. Infiltration of these companies in the Indian insurance market will somewhat hamper the progress of LICI. In consequence, LICI's contribution towards nation building, the interest of policyholders and agents, and service security of the employees will be affected. In this way, the economic liberty and political sovereignty of India may be endangered. The experience of Mexico and Argentina's economy may serve as an alarm signal.

Globalization of insurance industry, thus puts LICI face to face with a few challenges, namely: (a) Low awareness level, (b) Product innovation, (c) Distribution, (d) increasing

penetration of insurance and (e) Customer service and investments. To develop the life insurance business, the LICI should use the following strategies:

1) Creation of insurance awareness
2) Maximize wealth
3) Product customization
4) Plunge in to the rural markets
5) Taping the niche markets
6) Societal marketing
7) Well established distribution network

In order to combat the changing situation, LICI should try to raise its efficiency. The efficiency can be raised by rendering best 'after-sale-service' and developing agents' traits viz. behaviour, conduct, 'new plan/scheme introducing capacity', 'beyond business service', 'social familiarity' etc. Because the agents are the pillars of LICI, procure the business of LICI from the grass root level, utilizing their traits. If the efficiency of LICI is possible to increase by this way, then the premier financial institution can face the challenge of neo-liberal-globalization.

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Book Review

Corporate Financial Reporting: Theory and Practice, *Andrew Higson,* Sage Publications, London, 2003, pp xii+228.

The central purpose of accounting, as has been pointed out by *Littleton* decades ago, is to make it possible for persons to reach a calculated judgement of the success of the enterprise in rendering its services. In today's world, there are varieties of groups who are interested to know the financial performance of a corporate organisation. It is the financial reporting of a corporate enterprise that serves the purpose. Earlier, the objectives of financial reports concentrated on the issue of ensuring that organisational assets were correctly accounted for to the owners of that organisation. However, over time the objective of financial reporting has broadened. The *Corporate Report* (1975) of the UK has rightly identified the objective of financial reporting as "... to communicate economic measurement of and information about the resources and performance of the reporting entity useful to those who have a reasonable right to such information." The users of economic information, needless to mention, give stress on the correctness of economic information. If the information supplied to them is presented in a wrongful way, it would certainly generate a substantial economic loss to them because they take decisions on the basis of such faulty information. Therefore, users should necessarily be assured with the authenticity of the information they are furnished with. The critical role of external auditors that they are required to perform in providing the said assurance to the external users of financial reports is particularly important while judging the reliability of financial reporting of corporate entity. External auditors may be considered as a third party in the accountor-accountee relationship as elaborated by Yuji Ijiri.

The present book is built around the premise that to understand financial reporting, it is necessary to understand the motivations of management, and the work of the external auditors. According to the author, to understand the financial statements, one needs to appreciate the auditors' work and opinion, and, conversely, to understand the auditors' work and opinion, it is necessary to appreciate the scope and limitations of the financial statements. Auditing is not just about vouching the contents of the accounting records but it is significantly important to understand accounting data in context. The book seeks to explore the interdependences between financial reporting and auditing.

The book is divided into ten chapters that are well integrated. Chapter 1 is introductory chapter and it deals with the scope of the problems facing financial reporting. The current issues like globalisation, development of knowledge economy, the rise of corporate governance and their possible impacts on financial reporting are also discussed in this chapter. Chapter 2 examines the notion of 'accounting theory' and discussions are done noting that this phrase is usually used in the sense of financial accounting and financial reporting. The next chapter gives focus on the development of accounting and corporate reporting. It also emphasises the importance of viewing financial reporting in the context of corporate governance, and not vice versa. The more recent developments in financial reporting and the regulation of accounting are dealt with in chapter 4. It examines the development of the belief that the objective of the financial statements is to enable users to take economic decisions and to enable them to make their own predictions of future cash flows. The next chapter gives stress on, while discussing the development of the company external audit, how the external audit has changed over time in line with changes in the business environment.

The next chapter i.e. chapter 6 explores the management-auditor relationship and the chapter suggests that the external audit may properly be viewed as the audit of motivations. Chapter 7 examines the message the auditor is trying to communicate at the end of the audit through his audit report. The next chapter suggests that the possibility of a financial reporting expectations gap which results from a financial statements expectations gap and an audit expectations gap.

The penultimate chapter (i.e. chapter 9) seeks to offer, after having identified the financial reporting expectations gap, an alternative basis for the construction of a conceptual framework for external corporate reporting. In the concluding chapter the author has identified 'the corporate communication of performance and risk' as the alternative conceptual framework, referred to in previous chapter, and identifies some areas which are required to be developed in order to tackle problems associated with construction of alternative conceptual framework.

The book has been written in a very well-integrated manner and it never slips from the original tune , identified by the author as " to understand financial reporting, it is necessary to understand the motivations of management" and while discussing elaborately management-auditor relationship in chapter 6, the author has rightly argued that there may arise potential for bias on the part of management in course of preparing financial reports because they used to be relied heavily upon personal judgement and estimates. Therefore, it is not really the duty of external auditors to eliminate such biasness. In present day's context,

the auditors are often criticised (after the mishaps of Enron, World-Tel) for failing to detect a fraud and its effectiveness is now under question. The author has argued nicely by saying," ... it may be cold comfort that if things are bad now with the external audit, they would probably be much worse without it"(p.132).

The book is written in lucid English and is easy to understand. The author has used a vast reference while trying to establish his own viewpoint to a particular context. These can be a source of further researches in the area of financial reporting.

Finally, the external auditors do an audit and provide a report on their opinion of the truth and fairness and other properties of the financial statements. The effect of this is that investors and others have a level of assurance from the auditors that the financial statements are credible and reliable. The International Standard on Assurance Engagements (ISAE), issued in June 2000, provides an overall framework for assurance engagements intended to provide either a high or moderate level of assurance. It may be said that the quality of the book would increase further had a chapter been devoted to examine how far that framework be useful to enhance the quality of audit report of external auditors and how much it will contribute to make the said report free from the biasness as referred to Chapter 6.

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